

**Smooth Rock Falls Forest
Independent Forest Audit
2000-2005**

Prepared by



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1.0 Executive Summary

This audit report, for the Smooth Rock Falls Forest (the Forest), is the result of an Independent Forest Audit (IFA) conducted by KBM Forestry Consultants Inc., under contract to the Ontario Ministry of Natural Resources (MNR). All Crown forests in Ontario must undergo an IFA at least every five years; the requirement for independent audits arising from MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario (2003). Regulation 160/04 of the Crown Forest Sustainability Act sets out the specific requirements for conducting the audits.

The Smooth Rock Falls Forest audit covers the five-year period April 1, 2000 to March 31, 2005. Tembec Industries Inc. (Tembec) and MNR Cochrane District are the principal auditees. The Smooth Rock Falls Forest is located in MNR's Northeast Region within the Cochrane District. Tembec has held the Sustainable Forest Licence (SFL) since September 1995 and administers the Forest from its office in Timmins Ontario. The Smooth Rock Falls Forest lies within the Boreal Forest and comprises a total area of approximately 502,704 hectares of which 359,311 hectares (71%) are productive forest lands. The dominant harvest method employed on the Forest is Careful Logging Around Advance Growth (CLAAG) in winter, which is ideally suited to the lowland black spruce working group that comprises approximately 87% of the Forest. Conifer species harvested from the forest is delivered to the Tembec sawmills in Cochrane and Timmins as well as to the Kraft pulp mill in the Town of Smooth Rock Falls. Poplar species from the Forest supplies aspen to Grant Forest Products Inc. in Timmins and veneer poplar to Norbord Industries Inc. in Cochrane.

The purpose of the IFA is to:

- Assess compliance with the Forest Management Planning Manual (FMPM) and the Crown Forest Sustainability Act (CFSA);
- Assess compliance of forest activities with the FMPM and the CFSA;
- Compare planned versus actual forest management activities;
- Assess the effectiveness of forest management activities in achieving audit criteria and management objectives;
- Assess the effectiveness of any action plans resulting from previous audits; and
- Assess a licensee's compliance with the terms and conditions of the SFL.

Based on the audit, 26 audit recommendations were made. Recommendations can arise from audit team observations of material non-conformances, or may be developed to address situations in which the audit team identifies a significant lack of effectiveness in forest management activities.

Approximately one half of the recommendations address deficiencies in compliance with the forest management planning process, the CFSA and the SFL. The remaining recommendations deal with the effectiveness of forest management activities on the Smooth Rock Falls Forest. Ten of the recommendations are directed to Tembec, 11 are given to MNR and five address actions required by both MNR and Tembec. Twenty suggestions are given. Suggestions are less serious in nature and provide advice for improving particular aspects of forest management.

The audit team concludes that, with the exceptions noted in the audit report, management of the Smooth Rock Falls Forest was in compliance with the legislation, regulations and policies that were in effect during the term of the audit, and the Smooth Rock Falls Forest was managed in compliance with the majority of the terms of Sustainable Forest Licence No. 541841 held by Tembec Industries Inc. Forest sustainability is being achieved as assessed through the Independent Forest Audit Process and Protocol, except that the management objective to have a continuous and consistent wood flow is not achieved.

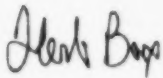
The audit team notes that the long-term health and vigour of the Forest is being provided for by using forest practices within the limits of silvicultural requirements as per the CFSA, but the level of harvest is forecast to decline for the next 30 years. Analyses carried out by the Company revealed that increased

silvicultural expenditures in the near-term does not mitigate the predicted 30-year decline in wood supply. The decrease in allowable harvest area is strongly related to deferred area (through meeting guidelines) and the current age-class distribution with few 40-80-year-old stands relative to the large proportion of 140+ year-old black spruce stands. The age class structure of the forest coupled with the guideline deferrals (especially for marten cores) has a significant and dynamic negative effect on wood supply. The effect of guidelines on wood flow has not been addressed with a recommendation but will need to be addressed in future plans as the impact on social and economic benefits has not been quantified. The auditors note that this is a common problem in many of the forests with similar age-class structures.

In the opinion of the audit team some of the more important recommendations that need immediate attention include those dealing with utilization and compliance issues, artificial renewal planning on upland sites, proper use of CLAAG and silvicultural effectiveness monitoring.

Tembec has made considerable efforts to improve their approach to forest renewal on the Forest. The audit team found 12 of the 13 recommendations of the 2000 Independent Forest Audit were completed and implemented in a satisfactory manner. Approximately 50,000 hectares of backlog and not satisfactorily regenerated (NSR) land have been surveyed of which approximately 41,000 hectares have been determined to be free growing and returned back into the productive forest inventory. Although several findings are directed to improve the application of CLAAG, the Company's use is appropriate and successful in regenerating the Forest.

A Best Practice was directed to Tembec and MNR for the exemplary efforts in establishing a working relationship with Taykwa Tagamou Nation and providing opportunities for Taykwa Tagamou Nation to realize economic benefits from forest management activities on the Smooth Rock Falls Forest.



Herb Bax, R.P.F., CF/CFA, CEA (SFM), EMS (LA)
Lead Auditor, on behalf of the Audit Team

2.0 Introduction

This audit report presents the results of the Independent Forest Audit (IFA) conducted by KBM Forestry Consultants Inc. (KBM) on the Smooth Rock Falls Forest (the Forest) for the five-year period from April 1, 2000 to March 31, 2005. The Smooth Rock Falls Forest is managed under a Sustainable Forest Licence (SFL) held by Tembec Industries Inc. (Tembec).

Throughout this audit report any reference to 'the Company' also refers to Tembec. As the managers of the Smooth Rock Falls Forest, the principal auditees are both Tembec and MNR Cochrane District (MNR). Other auditees include overlapping licensees, contractors and other branches of the Ministry of Natural Resources to the extent that forest management activities carried out by them are the subject of audit examination.

2.1 Audit Process

2.1.1 Purpose

The Independent Forest Audit Process and Protocol¹ (IFAPP) was developed by the Ministry of Natural Resources Forest Management Branch to provide a comprehensive and consistent method of evaluating forest management activities on Crown land. The IFAPP states that the purpose of an IFA is to:

- Assess compliance with the Forest Management Planning Manual² (FMPM) and the Crown Forest Sustainability Act³ (CFSA);
- Assess compliance of forest activities with the FMPM and the CFSA;
- Compare planned versus actual forest management activities;
- Assess the effectiveness of forest management activities in meeting forest management objectives;
- Assess the effectiveness of any action plans resulting from previous audits; and

- Assess a licensee's compliance with the terms and conditions of the SFL.

2.1.2 Audit Process Overview

The IFAPP contains 158 criteria and 409 procedures, of which 336 apply to the Smooth Rock Falls Forest audit. The audit procedures serve as a framework to provide a structured approach to evaluating whether or not forest management activities meet the requirements governing forestry practices on Crown land in Ontario.

The previous IFA conducted on the Forest was undertaken in 2000⁴. The implementation of recommendations contained in the previous audit was examined during the course of this audit (see Section 3.8).

The audit process for the Forest consisted of six components:

- A) Audit Plan⁵: KBM prepared an audit plan that described the schedule of audit activities, audit team members and participants, and auditing methods. The plan was submitted to MNR, Tembec, the Forestry Futures Committee (FFC), and the Chair of the Cochrane District Local Citizens Committee (LCC).
- B) Public Survey: KBM prepared a one-page public survey that was distributed to all organizations and to a random sample of one-third of the individuals listed in the Forest Management Plan (FMP) mailing list provided by MNR. It was also sent to contractors, commitment holders and tourist operators. In addition, the public notice was posted on and available for download from KBM's web site (www.kbm.on.ca). The purpose of the survey was to solicit public input and to provide respondents with an opportunity to identify and discuss any site-specific concerns on the Forest. A copy of the survey can be found in Appendix F.

Notices were placed in four local newspapers (*Wawatay News*, *The Cochrane Times Post*,

¹ MNR. 2005. Independent Forest Audit Process and Protocol. 27 pp. + Appendices.

² MNR. 1996. Forest Management Planning Manual for Ontario's Crown Forests. Queen's Printer for Ontario. 452 pp.

³ Crown Forest Sustainability Act, 1994, S.O. 1994 c. 25.

⁴ KBM Forestry Consultants Inc. 2000. Smooth Rock Falls Independent Forest Audit Report 1995-2000. 24 pp. + Appendices.

⁵ KBM Forestry Consultants Inc. 2005. Smooth Rock Falls Forest Independent Forest Audit Audit Plan. 17 pp. + Appendices.

The Enterprise - Iroquois Falls and *The Timmins Daily Press*.) soliciting public input on forest management activities on the Forest for the period under audit. A copy of the public notification can be found in Appendix G.

Nine responses were received as a result of the public survey mail-out. A summary is presented in Appendix E.

- C) Field Site Selection: The audit team carried out a preliminary site selection process prior to meeting with Tembec and MNR staff. Annual Work Schedules (AWSs) and Annual Reports (ARs) were used to ascertain the amount and type of forest operations carried out on the Forest during the course of the audit term. A stratified random sample of sites was then selected to ensure that selected sites were representative of activities conducted on the Forest during the audit term.

A pre-audit meeting was held in Timmins on August 9 and 10, 2005. Much of the pre-audit was spent with Tembec and MNR conducting the preliminary site selection for the field portion of the audit. The audit team also met on the evening of August 9, 2005 with the LCC during their regular monthly meeting in Cochrane.

- D) Pre-audit Document Review: Prior to the nine-day site visit, the audit team reviewed documents provided by Tembec and MNR, including but not limited to, the:
- 2000-2005 Smooth Rock Falls Forest FMP,
 - 1990-1995 and 1995-2000 Report of Past Forest Operations (RPFO) for the Smooth Rock Falls Forest,
 - 2000-2005 AWSs,
 - 2000-2004 ARs,
 - Comparison and Trend Analysis of Planned versus Actual Forest Operations Report (TAR),
 - Smooth Rock Falls Forest Independent Forest Audit Report 1995-2000, and
 - Action Plan Status Report for the 2000 IFA Report for the Smooth Rock Falls Forest.
- E) On-Site Audit: The audit team spent nine days on site conducting the field portion of the audit from September 26 to October 4, 2005. The audit team conducted interviews with staff from Tembec, MNR, contractors and wood

supply commitment holders. The audit team also conducted interviews with LCC members. The audit team examined documents, records, and maps at Tembec and MNR offices and spent three days in the field examining forestry practices at 36 field sites (see Figure 1).

KBM committed to a sampling range of between 10 and 25% of key activities and operations conducted on the Forest. Table 1 presents the sampling intensity of the field visits completed on the Forest. The objectives of the field site visits were to confirm that on-the-ground activities were conducted according to the plan, conformed to provincial laws, regulations, and guidelines, and were effective.

A sample of all key forest management activities was examined on the ground. Due to access constraints, the audit team relied on a helicopter to reach a number of the field sites.

A closing audit meeting was held in Timmins on October 4, 2005. This meeting provided a forum for the audit team to present and discuss preliminary audit results with Tembec, MNR, and LCC representatives.

- F) Final Report: The audit results are presented in conjunction with a brief description of the audit process and the forest license area under review. Within the report, an important distinction is made between recommendations and suggestions. Recommendations draw attention to deficiencies in forest management that require corrective action. In most cases, recommendations are the result of non-conformance to a law and/or policy, or specify a lack of effectiveness in forest management activities. Recommendations arising from this audit must be addressed in an action plan developed by Tembec in consultation with the District Manager and designated Regional and Forest Management Branch representatives, as per Appendix E of the IFAPP. Suggestions are less serious in nature, and provide advice for improving particular aspects of forest management. The auditees are not required to address suggestions in the action plan. A best practice highlights an exceptional management practice or high level of performance noted on the Forest.

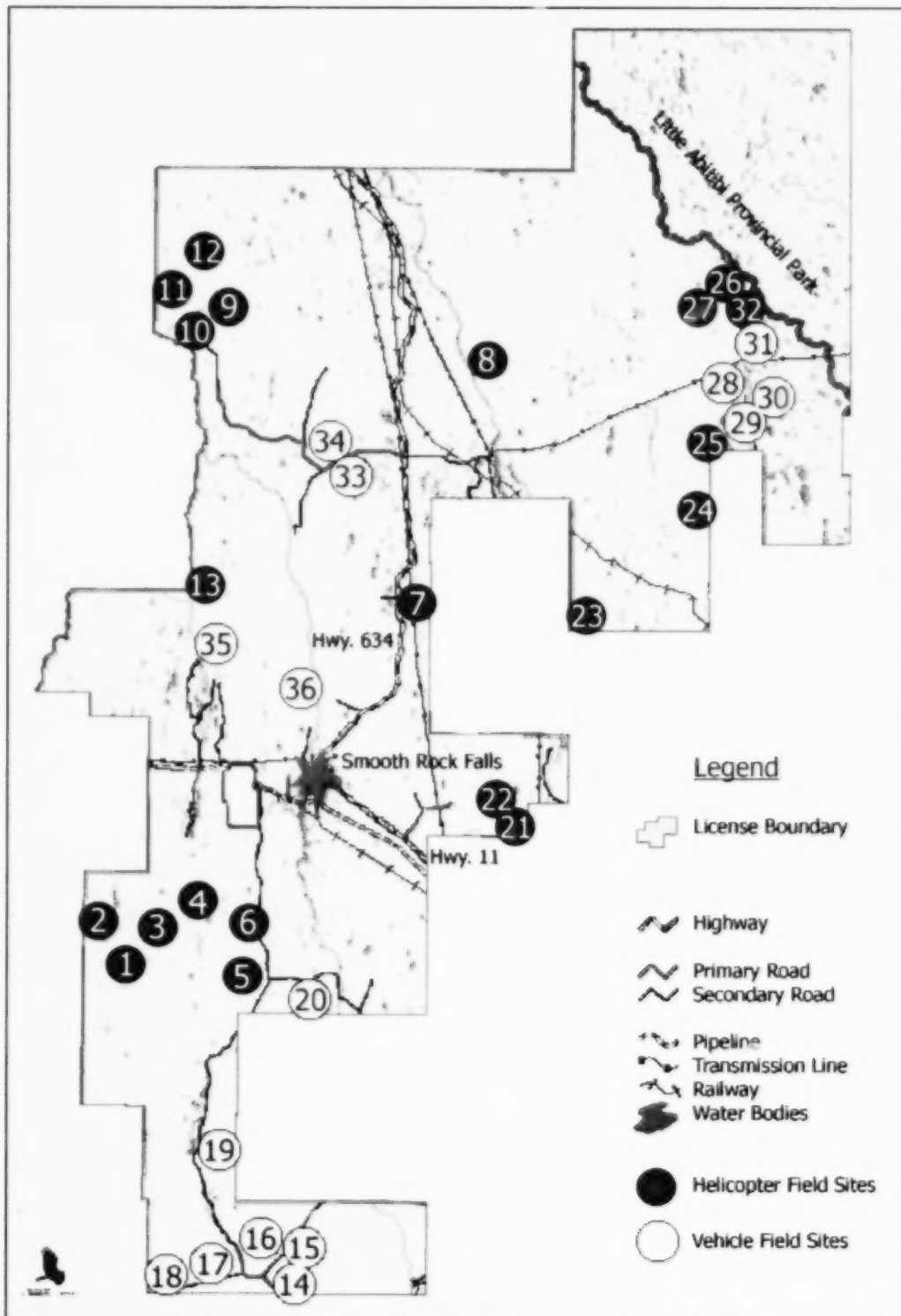


Figure 1. Audit field site locations on the Smooth Rock Falls Forest.

Table 1. Audit Sampling Intensity for the Smooth Rock Falls Forest.

Activity	Total Area/Number (2000-2005) ^a	Area/Number Sampled	Percent Sampled (%)
Harvest	7,075 ha	3,395 ha	48
Renewal & Maintenance	14,289 ha	4,242 ha	30
Free-to-Grow	49,689 ha	10,920 ha	22
Areas of Concern Categories ^b	18	11	61
Roads Construction	11.2 km	7 km	66
Specified Procedures Review ^c	3,806 ha	1,998 ha	52

^a Harvest, renewal and tending area is estimated based on four years actual and one year projected.

^b Area of Concern (AOC) categories refer to the different types of AOCs present on the Smooth Rock Falls Forest. Examples include riparian areas, reserves, cool water fisheries, osprey nests. The audit team viewed 18 different categories of AOCs based on a representative sample of the total number of categories. The focus is on those AOC categories that have the higher risk or sensitivity to environmental issues (e.g., nesting sites, water crossings, tourism/trapping concerns). The sampling intensity based on the number of AOCs was 11%. This meets the sampling requirement stipulated in the IFAPP. However, those categories of AOCs with the higher risk and/or sensitivity were sampled at a rate of 80-100 %. As a high percentage (>80%) of water crossings were examined it is reasonable to assume that a high percentage of water crossings potentially affected by road maintenance carried out during the audit term were inspected and found satisfactory. Therefore a separate count of water crossings examined is not provided.

^c The Specified Procedures Review involved the verification of maps, records, and fieldwork associated with the Smooth Rock Falls Forest Renewal Trust Account expenditures for 2003-2004.

2.1.3 The Audit Team

The audit was carried out by an independent audit team assembled by KBM Forestry Consultants Inc. under contract with MNR. The audit team consisted of seven members:

- Herb Bax, R.P.F., CF/CFA, CEA(SFM), EMS(LA), Lead Auditor
- Dave Thomson, R.P.F., Planning Auditor
- Bill Wiltshire, R.P.F., Harvest Operations Auditor
- Brad Chaulk, R.P.F., Silviculture Auditor
- John McNicol, Wildlife/Ecology Auditor
- Susan Jarvis, R.P.F., Forest Modeling (SFMM) Auditor
- Terri Dawyd, Audit Secretariat

Audit team members and their responsibilities are described in Appendix B.

2.1.4 Guiding Principles

The IFAPP identifies the components of the audit process. The audit protocol is the main body of the audit and consists of principles, criteria, and

procedures. There are eight guiding principles within the audit protocol (Appendix C). Each principle contains a series of criteria that guide the audit team during its assessment of the achievement of the principles. Under each criterion a number of procedures serve to assess the auditees' compliance and effectiveness. KBM assigns each of the applicable procedures to an auditor, who in turn examines the evidence for conformity to the procedure.

2.2 Forest Management Context

2.2.1 Location of the Smooth Rock Falls Forest

The Smooth Rock Falls Forest is located in the Cochrane District of MNR's northeast Region (Figure 2). The town of Smooth Rock Falls is situated in the middle of the Forest.

Two Provincial Parks are located in or adjacent to the Smooth Rock Falls Forest. Greenwater Provincial Park lies outside of the Forest on the central eastern boundary while Little Abitibi Provincial Park transects the unit from southeast

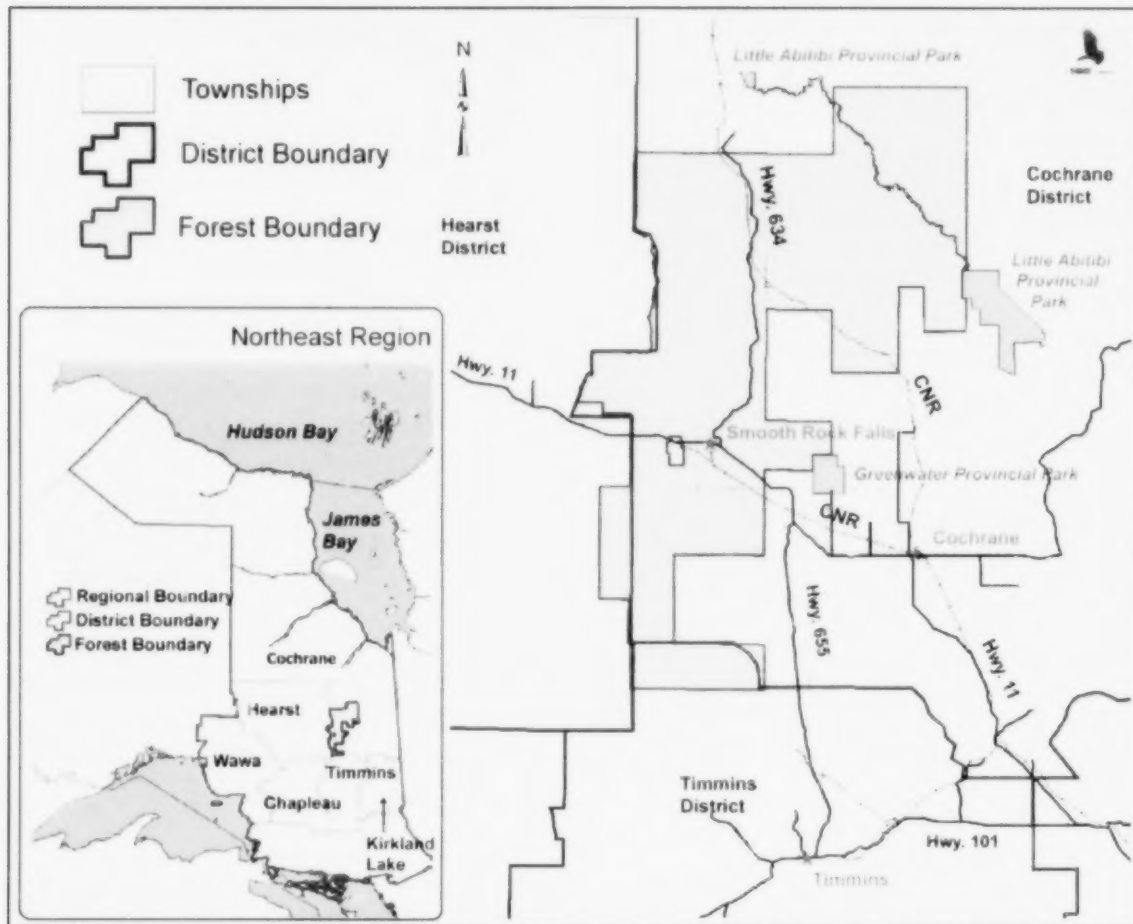


Figure 2. Location of the Smooth Rock Falls Forest (Source: 2000-2005 Smooth Rock Falls Forest FMP).

to northwest in the northeasterly corner of the Forest. In the latter stages of the 2000-2005 FMP preparation the Ontario Government announced the results of the Lands for Life process described as Ontario's Living Legacy⁶ (OLL). As a result a total of 23,489 hectares of land were set aside and designated as either conservation reserves, a waterway park, or an extension to the Greenwater Provincial Park.

The Abitibi and Mattagami Rivers are two large river systems that flow south to north through the Smooth Rock Falls Forest.

2.2.2 Smooth Rock Falls Forest Overview

Tembec Industries Inc. (Tembec) and MNR Cochrane District are the principal auditees. On September 14, 1995 Malette Inc. received an SFL under the CFSA for the Smooth Rock Falls Forest.

Later that same year, Tembec Inc. (now Tembec Industries Inc.) purchased Malette Inc. and now holds the licence. Tembec administers the Smooth Rock Falls Forest from its Timmins office.

The Smooth Rock Falls Forest lies within the Boreal Forest and comprises a total area of approximately 502,704 hectares of which 359,311 hectares (71%) are productive forest lands. Figure 3 shows the Crown Managed land classification break-down for the Forest.

The Smooth Rock Falls Forest is dominated by black spruce as Figure 4 demonstrates. Cedar, larch, jack pine, red pine and other conifer working groups have been combined (Incidental Working Groups) in Figure 4 and together account for 1% of the area. Poplar represents the next largest working group with the remaining working groups having only minor representation. A working group reflects the dominance of one species in the forest stand and must represent the

⁶ MNR. 1999. Ontario's Living Legacy Land Use Strategy. Queen's Printer for Ontario.

largest portion and varies from 40 to 100% of any stand.

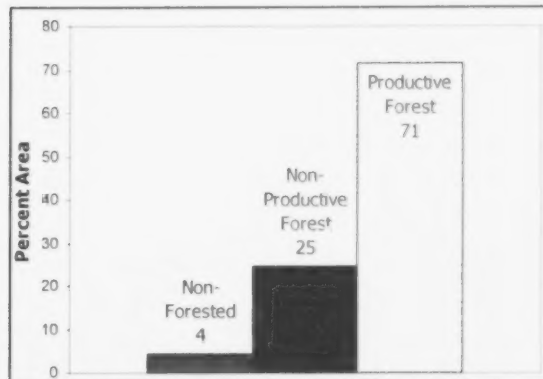


Figure 3. Percentage area by land type of Crown Managed lands on the Forest. (Source: Table FMP-1, 2000-2005 FMP.)

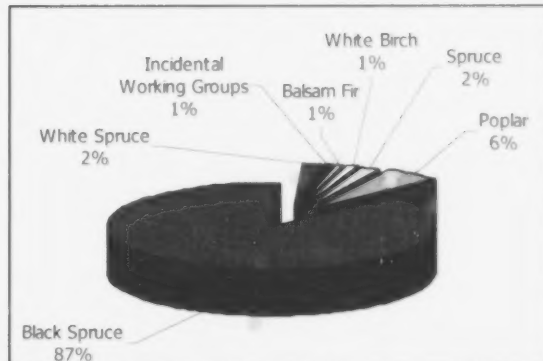


Figure 4. Percentage of Crown Managed Productive Forest by working group. (Source: Table FMP-2, 2000-2005 FMP.)

The major consumptive use of the forest resources on the Smooth Rock Falls Forest is commercial timber harvest. Wood from the Forest flows to a number of local mills. Conifer species harvested from the Forest is delivered to the Tembec sawmills in Cochrane and Timmins as well as to the Kraft pulp mill in the town of Smooth Rock Falls. Poplar species from the Forest supplies aspen to Grant Forest Products Inc. in Timmins and veneer poplar to Norbord Industries Inc. in Cochrane. Other mills receive chips or by-products from those mills. Local residents also use firewood from the Forest for personal use.

Aside from timber harvesting, outdoor recreation activities such as hunting, fishing, trapping, camping, canoeing and snowmobiling are important commercial uses of the Forest. There are 19 commercial outpost camps within the

boundaries operated by four commercial outfitters. Eight local tourist outfitters manage 16 Bear Management Areas on the Forest. The Forest is also divided into 32 traplines managed by local trappers who harvest furbearers for commercial purposes. The large river systems that run through the Forest provide the conditions necessary for the development of hydroelectric generation stations and many dams have been established. Tembec owns one dam on the Mattagami River which provides power to the pulp mill in Smooth Rock Falls.

2.2.3 Issues Impacting Forest Management

The IFAPP requires a review of high priority aspects (HPAs) of the auditees' systems or activities before the site visits take place. HPAs can include significant management challenges that are inherent to the Forest (e.g. presence of woodland caribou or extensive areas of sensitive soils), or can be specific issues that have arisen during forest management planning or plan implementation (e.g. conflicts with other forest users over proposed forest management activities).

The audit team requested that the auditees compile a list of HPAs for consideration during the audit. Following discussions with the auditees, eight HPAs were identified and included in the Audit Plan. The audit team considered the HPAs during the conduct of the audit and a list of the key points is presented below. Additional discussion is also found in Section 3 of this report.

- The use of Careful Logging Around Advance Growth (CLAAG) as a method of harvest and renewal. This will include looking at site disturbance. The 2000 IFA had three recommendations pertaining directly to CLAAG and the 2000-2005 FMP and the 2000 IFA identified the need for additional information and assessment to be confident that the areas where CLAAG was employed are regenerating satisfactorily (Sections 3.3.7 and 3.4.2).
- The allocation, approval process and AWS revisions associated with tertiary roads and water crossings as well as temporary bridge crossing standards and approvals (Section 3.3.9).
- A look at the achievement of recovered productive area due to slash management (Section 3.4.2).

- Access through the Little Abitibi Provincial Park (Section 3.3.7) and the Forest Engineering Research Institute of Canada (FERIC) study on the South Little Abitibi Main Road (Section 3.5.1).
- The status of the cultural heritage resource inventory information for the 2005-2010 FMP (Section 3.3.7).
- Forest Renewal Trust Fund Management (Sections 3.3.7 and 3.8).
- Aspen utilization (Section 3.3.7) and salvage approvals (Section 3.8).
- The use of corduroy in water crossings (Section 3.4.6).

3.0 Summary of Audit Findings

3.1 Commitment

An organization's policy acts as an important guide, providing a basis for making decisions in a consistent and reasoned manner. Policies help to ensure that decisions and actions undertaken by staff are related to the goals and objectives contained in the organization's policy. MNR and Tembec have corporate policy statements outlining their commitment to sustainable forest management.

MNR's commitment is described in the Policy Framework for Sustainable Forests⁷, the 2000 policy statement Beyond 2000⁸ and the 2005 policy statement Our Sustainable Future⁹.

Tembec also has an Environmental Policy in place that emphasizes the Company's support of responsible stewardship of resources including forests, fish and aquatic habitat, wildlife, air, land, and water. Through the policy Tembec also commits to implementing and maintaining an effective environmental management program that will govern its attitude and action in environmental matters and will benefit the environment, the community, the shareholders, employees and customers.

Tembec has since developed and implemented two Environmental Management Programs: *Impact Zero* and *Forever Green* to minimize the impact of manufacturing activities and forestry operations on the environment. The aim of the *Forever Green* program is the integration of sustainable forest management criteria, as defined by the Canadian Council of Forest Ministers (CCFM) and the Canadian Standards Association (CSA) Z809 Standard, into the Company's forestry practices. The Smooth Rock Falls Forest also received Forest Stewardship Council (FSC) certification in early 2005.

Tembec's commitment to forest management is also demonstrated through its forest compliance program. Tembec has a program of compliance documented in accordance with the Company's Environmental Management System Standard (ISO 14001:2004).

⁷ MNR. 1994. Policy Framework for Sustainable Forests. 5 pp.

⁸ MNR. 2000. Beyond 2000. 20 pp.

⁹ MNR. 2005. Our Sustainable Future. 21 pp.

A file is completed for each harvest block which includes a map outlining all required conditions and Areas of Concern (AOCs) pertaining to the block. This map is used as a "sign-off" to ensure that operations staff know what the requirements are. The original map is prepared by, reviewed and certified by a Registered Professional Forester (R.P.F.). The block file contains the MNR start-up notice, a schedule of inspections, completed inspection forms, utilization surveys and any other items pertaining to the harvest and inspection of operations on the block.

Some problems with delayed compliance reporting were noted by the MNR and have been addressed through the creation of a reminder system within the data base. Issues of actual compliance findings and the standards achieved are addressed elsewhere in this report in Sections 3.6.1 and 3.8.

3.2 Public Participation

3.2.1 Local Citizens Committee

As a requirement of forest management planning, an LCC must be established to assist the plan author and planning team in preparation of the FMP and to provide the MNR District Manager with advice when discretionary decisions are required. Local Citizens Committee (LCC) members are appointed by the MNR District Manager to reflect and represent the range of interests in the area. The LCC acts mainly in an advisory capacity, representing the public interest.

The Cochrane District LCC was established in 1996 to meet the requirement for public participation for resource management in the Cochrane District. To better recognize their broad role, members soon requested a name change to the Cochrane District Integrated Resource Advisory Committee (IRAC). In 2000, the name reverted back to the Cochrane District LCC as a result of revisions to the Terms of Reference which limited the LCC's responsibilities to matters dealing with the preparation and implementation of resource management plans.

The LCC was effective and active throughout the planning period. Two LCC members participated on the planning team and the LCC reviewed all required components of the plan. No joint meetings between the Planning Team and LCC

were held due to differences in personal schedules.

The LCC participated in the field audit (one member accompanied the audit team in the field for a day), members of the audit team met with the LCC at the pre-audit meeting, and the audit team met with several members of the LCC after the field visit. A considerable exchange of letters and emails between the audit team and some LCC members occurred.

During interviews, LCC members and MNR staff indicated that LCC meetings were conducted in an open manner and that all viewpoints were considered. Records and interviews confirm that the LCC has met its intended purpose by:

- representing local interests,
- participating in the development and selection of management alternatives,
- contributing extensively to plan implementation, and
- providing advice to the District Manager.

The Cochrane LCC deals with four forests and the entire Cochrane District. During interviews, several members expressed concern over the administrative workload associated with reviewing activities on four forests, and in particular over the large number of amendments presented at each meeting. Members felt amendments were monopolizing meeting agendas, resulting in a lack of time for other business and meaningful input. The previous audit noted this situation along with an MNR proposed strategy to utilize LCC sub-committees and procedures to manage volunteer time more efficiently. It appears that such a strategy was not developed or implemented.

Recommendation 1: The Ministry of Natural Resources must develop a strategy to meet the consultation requirements of the District while managing the efficient use of Local Citizens Committee members' time.

The membership of the LCC is to include a range of interests in the area. During interviews, several members of the LCC expressed concern about representation, particularly with respect to a lack of mining and First Nations representation. Table 2 presents the main interests to be represented on the LCC (from the Terms of Reference) and the current level of representation for each.

Efforts have been made to expand the representation of the LCC, but several key groups require better representation to meet requirements of the 2004 Forest Management Planning Manual¹⁰ (2004 FMPM).

The audit team acknowledges the difficulty in obtaining qualified and interested volunteers in our communities and provides Recommendation 1 and Suggestion 1 in that context.

Suggestion 1: The Ministry of Natural Resources should review the membership of the Local Citizens Committee to ensure that the interest groups identified in the Local Citizens Committee's Terms of Reference and the 2004 Forest Management Planning Manual are represented.

Table 2. Level of Representation of Main Interests on the LCC.

2005 LCC Membership	
Interests Identified in Terms of Reference	Current Level of Representation
General Public	-
Local Business	4
Labour/union organizations	-
Tourism Industry	2
Anglers and hunters	1
Native Communities	-
Mining Industry	-
Forest Industry	3
Naturalists	-
Municipalities and conservation authorities	2
Trappers and other resource users	1
Other Crown Land recreationalists	-
Other interest groups	-

 Priority interest groups identified by LCC and MNR that are not represented.

¹⁰ MNR. 2004. Forest Management Planning Manual for Ontario's Crown Forests. Queen's Printer for Ontario. June 2004. 384 pp. + Appendices.

3.2.2 FMP Standard Public Consultation Process

Requirements for public participation during the preparation of FMPs are described in the FMPM. Public information centres for the 2000-2005 Smooth Rock Falls Forest FMP were conducted in accordance with the FMPM (1996) requirements. Based on the evidence available, the public notices met most of the requirements of the FMPM (1996). Public notices required by the FMPM were published in both English and French languages. The FMPM (1996) requires that the public notices also be published in an appropriate Native language unless the Aboriginal communities absolve the MNR of this requirement. The Aboriginal communities were not given this option, therefore the public notices should have been published in the appropriate Native language. The 2004 FMPM has changed these requirements and requires public notices to be published in a specific Aboriginal language only when requested by the Aboriginal community. The audit team also determined that public notices were not published in Aboriginal media as required by the 1996 FMPM and this remains a requirement under the 2004 FMPM.

Recommendation 2: The Ministry of Natural Resources must ensure that all public notices follow the process indicated in the Forest Management Planning Manual to ensure Aboriginal involvement requirements are met.

Comments were received from the public during each stage of the planning process and all comments were responded to by the planning team and documented (Appendix E of the 2000-2005 FMP).

3.2.3 Native Peoples' Consultation

The IFAPP is very clear on what falls within the scope of the audit with regards to the participation of Aboriginal peoples and communities in forest management activities. Specific responsibilities of the auditees are assessed against the Native consultation requirements of the FMPM and negotiations must be conducted with native communities at the local level in order to identify and implement ways of achieving a more equal participation by Aboriginal peoples in the benefits provided through forest management. Aboriginal and treaty rights issues are outside the scope of this audit.

The CFSA and the FMPM require opportunity for Native (Aboriginal under the 2004 FMPM) input and involvement in the forest management planning process. Native communities have the option of participating in the regular public consultation process or choosing the additional consultation referred to as the Forest Management Native Consultation Program (FMNCP) in the 1996 FMPM. Through this process, members of identified First Nations, Band Councils, Treaty Organizations, or Tribal Councils are contacted by MNR regarding forest management planning in their area of interest. Public notices are posted in the Native media and in the Native language where required. The Ministry of Natural Resources, with representatives of interested Native communities, also produce a Native Background Information Report that is used to prepare the Report on the Protection of Identified Native Values.

There are two First Nations within the Smooth Rock Falls Forest who are impacted by the FMP: Taykwa Tagamou Nation and Moose Cree First Nation. Each First Nation was invited to participate in the planning process for the 2000-2005 FMP and given the option of having a separate Native consultation process.

Moose Cree First Nation chose to be involved through the standard public consultation process due to the relatively small amount of traditional territory within the Smooth Rock Falls Forest. Evidence indicated that all public notices for the standard public consultation process as required by the FMPM were sent to the Moose Cree First Nation.

Taykwa Tagamou Nation (TTN) chose to participate in the Forest Management Native Consultation Program (FMNCP). A representative from TTN also participated on the planning team with excellent attendance. Demonstrating an extraordinary effort the Plan Author and the TTN representative met almost weekly, in addition to regular planning team meetings, to discuss any concerns and increase understanding of the forest management planning process. Tembec and MNR coordinated and participated in three community meetings held in TTN and one additional meeting held in Moosonee to include off-reserve TTN members in the FMNCP. Taykwa Tagamou Nation community members participated in identifying native values and recommending prescriptions for the protection of

those values. Community members also provided input to the Native Background Information Report and the Report on the Protection of Identified Native Values.

In the midst of final plan review there was a change in leadership of the Taykwa Tagamou Nation. As a result, plan approval was delayed while Tembec and TTN entered into negotiations. A number of facilitated education and working sessions were held between TTN, Tembec and MNR. Consensus was reached on the identification of Native values and associated prescriptions in May 2000.

The negotiations also resulted in TTN, Tembec and MNR becoming signatories to a Working Relationship Agreement (the Agreement). The Agreement is currently being re-negotiated with a consultant working on behalf of TTN. During the first year of the Agreement, Tembec and MNR financially supported a Forestry Liaison Officer position at TTN. Tembec continued to financially support this position, in part, for an extended period.

Taykwa Tagamou Nation and Tembec also signed a Long-Term Forestry Agreement involving all nine of Tembec's SFLs in the area. Tembec has a full-time staff position in place that reports to senior management and is responsible for communication and consultation with First Nations.

Best Practice 1: The audit team recognizes Tembec's and the Ministry of Natural Resources' exemplary efforts in establishing a relationship with Taykwa Tagamou Nation and applying the consultation process to encourage and maintain the participation of all parties.

Tembec has also contracted harvesting opportunities during the audit term to both TTN (through TTN Forestry Services) and Moose Cree First Nation on the Smooth Rock Falls Forest and other SFLs held by the Company.

3.2.4 Annual Work Schedule Public Inspection

The FMPM outlines the public inspection requirements for AWSs, aerial herbicide programs, insect pest management programs, and prescribed burns.

The AWS public inspection notices examined contained the detailed information required by the FMPM. While the notices were created in both English and French, there was no evidence that notices were published in Native media or in any Native language. Nor was there any evidence that the communities were asked to see if translation was, or was not, necessary as stipulated in the FMPM. Recommendation 2 addresses this shortcoming.

Over the audit term, the amount of evidence on file for each AWS term was inconsistent. For example, there was no evidence on file for the 2000-2001 AWS and the mailing list or evidence of publication of notices in the media were non-existent for the 2001-2002 and 2002-2003 AWSs. However, during the latter two years of the audit term, significant improvements were made in maintaining evidence of conformance to AWS public notification requirements.

Aerial herbicide application was planned in four of the five AWS terms under audit. There was no evidence on file to suggest that public consultation requirements of the FMPM were met for three of those terms.

Slash pile burning was carried out during the audit term. Under the 1996 FMPM, slash pile burning requires MNR to notify the public in advance of such activities. Again, minimal evidence of public notification was kept on file to allow for a thorough assessment. However, public notifications for slash pile burning has been changed under the 2004 FMPM. Even so, MNR must maintain adequate records to demonstrate conformance to the requirements and a recommendation is warranted.

Recommendation 3: The Ministry of Natural Resources must maintain adequate records of all public consultation communications to document that Forest Management Planning Manual requirements were met at all stages of the forest management planning process.

3.3 Forest Management Planning

3.3.1 Planning Team Activities

The planning team for the 2000-2005 Smooth Rock Falls Forest FMP was established and

approved by the District Manager as required by the FMPM and composition of the team was appropriate. Two members of the LCC were members of the planning team which was chaired by an R.P.F. Regular reports of FMP progress were made to the LCC by the chair of the planning team. Terms of Reference were developed and approved in a timely fashion and the roles and responsibilities of the planning team were clearly defined.

Requests for meetings with Land Use Permit (LUP) holders, Bear Management Area operators and trappers were responded to favorably by planning team members and the results of these meetings were discussed with the planning team and documented. Interviews with stakeholders and the correspondence file for the planning team indicated that public comments were considered and responded to during the planning process.

Where additional expertise was required in the planning process, the Terms of Reference indicated the names and responsibilities of individuals who would be involved. Unusually high staff turnover (seven MNR staff changes between March 1998 and July 2000) had an impact on the Smooth Rock Falls Forest planning team's effectiveness. During interviews, team members described a lack of depth within the team as a result of the staff turnover and inexperience.

Suggestion 2: The Cochrane District of the Ministry of Natural Resources should continue to monitor staff turnover to ensure that adequate resources are available for forest management planning.

3.3.2 Resource Stewardship Agreements

The requirement to develop Resource Stewardship Agreements was applicable beginning with plans that came into effect on April 1, 2003 and therefore was not relevant to the 2000-2005 Smooth Rock Falls Forest FMP.

3.3.3 Sources of Direction

Forest management planning relies upon numerous sources of direction including: Provincial legislation, MNR policy and guidelines, legal commitments, regional strategic direction, and local land use and resource management plans. The Ministry of Natural Resources (MNR) is responsible for identifying the relevant sources of

direction to ensure forest management planning teams are aware of, and have access to these items. The appropriate sources of direction were made available to and used by the planning team, and were listed in the 2000-2005 Smooth Rock Falls Forest FMP. The Approved Cochrane District Remote (Wilderness) Strategy¹¹ was used as a source of direction during the planning process, but was not referenced in the plan.

There is continuity between the AWSs and the FMP in terms of application of prescriptions related to forest operations. The AWSs do not reiterate details of prescriptions (such as AOC prescriptions) which are found in the FMP but rather references these through AOC numbering. Where the FMP does not speak to a particular operational prescription or where greater detail is required it is documented in the AWS.

One exception to the above relates to the negotiation of details of Hunting Trapping Concern (HTC) AOCs. This AOC was designed to protect the interests of trappers particularly around specific lakes and river systems. The details of the prescriptions are negotiated between Tembec and the affected trapper and are not necessarily documented in the AWS. This is discussed further in Section 3.3.7 and addressed in Recommendation 7.

In addition to the AWS document, Tembec uses a number of processes based in their Environmental Management System (EMS) to ensure that contractors are aware of the requirements of prescriptions for forest operations.

3.3.4 Introduction

The Ontario Environmental Bill of Rights¹² (EBR) was proclaimed in 1994. The EBR contained the following three key principles:

- The people of Ontario recognize the inherent value of the natural environment;
- The people of Ontario have a right to a healthy environment; and,
- The people of Ontario have as a common goal, the protection, conservation, and restoration of the natural environment for the benefit of present and future generations.

¹¹ MNR Cochrane District. 1997. Approved Cochrane District Remote (Wilderness) Strategy. 19 pp. + Appendix.

¹² Environmental Bill of Rights, 1993, S.O. 1993, c. 28.

The EBR recognizes that while the Government of Ontario has the primary responsibility for achieving the goal of protecting the natural environment, the public is entitled to a means of ensuring that it is achieved in an effective and open manner. As such, the EBR states that each designated ministry is required to prepare a Statement of Environmental Values (SEV). The SEV includes information on how the ministry will apply the purpose of the EBR to any decisions affecting the environment and how the purpose of the EBR will be integrated with other ministry considerations, such as social, economic and scientific considerations.

The Ministry of Natural Resources (MNR) developed an SEV which outlines their goals, objectives, and strategies to achieve the principles in the EBR. The 2000-2005 Smooth Rock Falls Forest FMP contained the appropriate information regarding MNR's SEV in the main text although it was not referenced in the Index of Environmental Assessment Components. The audit team does not believe this warrants a recommendation or suggestion, but brings it to the attention of the auditees.

3.3.5 Management Unit Description

The 2000-2005 FMP includes a thorough description of the geology, soils and sites of the Smooth Rock Falls Forest. These factors had a bearing on the development of the plan. For example, the issues section of the FMP discusses the lack of operational flexibility as a result of the predominantly wet site types on the Forest (i.e. harvesting mainly in the winter months and reliance on CLAAG as a renewal strategy) (Figure 5). In addition, the silviculture strategies of the FMP, including new forest units are "based on considerations such as site..." as are site specific Silvicultural Ground Rules (SGRs). However, it was noted that some SGRs include more than one site type. This is further discussed in Section 3.4.3.

The 2000-2005 FMP covers the historic forest condition of the Smooth Rock Falls Forest including the following general comment "[The Smooth Rock Falls Forest] historically has consisted of predominantly mature and over-mature lowland and upland spruce". Reasons why the author believes the historic age class



Figure 5. Typical lowland black spruce site, with harvested portion in foreground (Block R).

state of the Forest is "predominantly mature to over-mature" were not given. The author did state that "very little data are available for describing the historic condition of the Smooth Rock Falls Forest". A better discussion on this point was noted in the 2005-2010 FMP; however, neither FMP discusses the relationship between the over-mature historic forest condition, the current forest condition, and plan objectives for the future forest condition.

The historic harvest section was informative except that actual harvest levels should have been referenced rather than planned levels. Also, harvesting prior to 1976 was not discussed. This gives the incorrect impression that harvesting on the Forest has only occurred in the past 30 years.

Suggestion 3: Tembec should augment the historic forest condition section in forest management plans to provide all relevant information in order to provide a thorough historical forest condition context for plan objectives regarding future forest condition.

Based on discussion with Tembec staff, the Forest Resource Inventory (FRI) was updated based on the most complete information available prior to preparation of the 2000–2005 FMP. References concerning the FRI update are documented in the appropriate section of the FMP. However, the treatment of this topic was not particularly comprehensive. The base feature data, lakes, rivers, and existing roads were prepared and provided by the MNR. The description of the current forest condition was very comprehensive and met the requirements of the 1996 FMPM.

The 2000-2005 FMP provided a basic description of wildlife existing on the Smooth Rock Falls Forest. A forest management strategy for the maintenance of marten habitat involving the creation of ten marten core areas representing 15.9% of the Forest land base that is capable and suitable marten habitat was developed. The area of the Forest that was capable of supporting woodland caribou was identified and a forest management strategy for the maintenance of this species awaits the completion of the report Interim Direction for Caribou Management in Northeastern Ontario. This document was originally prepared within the Cochrane District in 1999 and focused specifically on a known situation at that time.

Since then a telemetry study has been completed and provided insight into temporal and spatial scale habitat use by woodland caribou in the vicinity of the Smooth Rock Falls Forest. Currently this knowledge is being synthesized into a document that will form the basis for caribou management in Northeastern Ontario (draft title proposed: Habitat Management Direction for Woodland Caribou for Forest Management Planning in Northeastern Ontario) and in addition is being filtered through the development of the Landscape Guide to ensure its strategic large-scale landscape direction links and meshes with the landscape requirements for woodland caribou in the northeast. The proposed Habitat Management Direction for Woodland Caribou document will also provide some guidance at the stand/site scale given the limitations of current knowledge. Thus, while it is proposed that large scale future landscape needs can be met by the Landscape Guide, the proposed Habitat Management Direction for Woodland Caribou document will also ensure direction for spatial patterning requirements are met.

Strategic Forest Management Model (SFMM) analysis of the Selected Management Alternative revealed that approximately 58% of the 19 wildlife species that were monitored in the planning process showed habitat decline over the first 30 years. Although for six species (pileated woodpecker, least flycatcher, boreal chickadee, snowshoe hare, lynx and black bear) these declines were below the Bounds of Natural Variation for the SFL for periods ranging from 30-90 years, the implications of these habitat declines at the ecoregional scale for these species were not assessed as required by the FMPM.

Recommendation 4: The Ministry of Natural Resources must ensure that when a Selected Management Alternative causes loss of habitat for a species in the context of the forest management unit, that the habitat implications are examined for that species at the ecoregional scale.

The values map for a forest management unit, maintained by MNR and meant to capture all the non-timber values that potentially could be affected by forest management activities, should be updated before the development of each plan. The updating process usually focuses on areas that are likely to be subject to forest management activities in the next five years. As is discussed in

Section 3.3.7 on Operational Planning and addressed in Recommendation 5 the values map was not up-to-date for the 2000-2005 FMP.

There are three parts to the socio-economic profile required by the FMPM: demographic; economic environment (industrial and non-industrial uses); and investment intention (industrial and non-industrial). A socio-economic profile was presented in the 2000-2005 FMP and included a demographic profile based on 1991 census data collected for Districts surrounding and overlapping the Smooth Rock Falls Forest.

3.3.6 Objectives and Strategies/ Management Alternatives

Objectives and targets were included in the 2000-2005 FMP to address forest diversity, social and economic matters, provision of forest cover and silviculture as required by the CFSA and FMPM. The objectives adhere to principles expressed in provincial as well as local direction. However, many objective targets were not quantifiable or simply stated "work towards continual improvement". Review of the 2005-2010 FMP Objectives, Targets and Strategies proved that the planning team has made a good effort to provide more measurable targets. Strategies in the 2000-2005 FMP were included to support objective achievement.

Mandatory management alternatives were produced and analyzed as required by the FMPM for the 2000-2005 FMP. Five additional management alternatives were investigated including one "no herbicide" option in response to LCC concerns. The Balanced Alternative was chosen as the Selected Management Alternative and run with both pre- and post-OLL land base changes. Not all FMP tables were revised to reflect the revised land base and strategic planning results.

The FMP management alternatives were analyzed through the use of the SFMM, with results documented in the plan for all alternatives. Electronic SFMM files were provided to the audit team for inspection and verification. The FMP documentation provided good background information to the SFMM modelling inputs. Ontario's Living Legacy land base changes late in the 2000-2005 FMP planning process were incorporated into the strategic planning for the FMP.

Natural succession assumptions resulted in some volume losses and gains when comparing average stand volumes before and after succession points. Total stand volumes appear to be reasonably close for the present intensities with minor losses resulting from natural succession transitions between forest units and age classes. These natural succession inputs were further refined for the 2005-2010 FMP. However, more gains in average volumes resulted from these changes. Forest succession assumptions should not result in overall changes in total area volumes. Current and future silvicultural intensities should be revised (e.g. basic mixedwood area succeeds back to younger mixedwood or spruce upland, both remaining at the basic intensity, resulting in a volume decrease of 77-100 m³ per hectare on average in the 2000-2005 FMP). The audit team suggests that Tembec revise the natural succession inputs for the 2010-2020 FMP with consideration for total stand volumes before and after succession points and the relative stand attributes of the various silvicultural intensities. All suggestions within this section are combined into Suggestion 4.

Post-harvest renewal treatment assumptions were revised for the 2000-2005 FMP and further refined for the 2005-2010 FMP (i.e. future forest units, costs). The strategic modelling was well done and plan documentation of modelling results was accurate.

Operational bypass area was estimated as Area Reserved from Harvesting in the 2005-2010 FMP. The FMPM (1996, C-6) states that bypass forms part of the available harvest which means bypass should not be included as an accumulating reserve category. This direction is necessary in order to correctly report in the ARs the area harvested and bypassed during operations and to correctly reconcile against the Available Harvest Area (AHA). Bypass is not a land base classification used in the FMPM (2004) that will be used for the 2010-2020 FMP therefore a suggestion is included to remove operational bypass percentages from the Areas Reserved from Harvesting assumptions.

Areas reserved from harvesting in the 2000-2005 FMP included reductions for riparian reserves (Figure 6) and wildlife habitat reserves. Upon determination of the final harvest areas and associated reserves, it was evident from Table FMP-19 that forecast reserves for the term were



Figure 6. Riparian reserves at a winter stream crossing.

three times the strategic modelling estimates. The FMP text correctly identified this discrepancy and provided rationale that the increased reserve area was additional protection of values related to the Taykwa Tagamou Nation that occurred late in plan preparation. The 2005-2010 FMP and associated SFMM modelling was reviewed to determine if this reserved area issue had been addressed in the next FMP. Table FMP-19 indicated that forecast reserves were again higher than projected SFMM reserves (262% higher), this is more significant because AHA had been under allocated by 15%. Two reasons for this variance were cited in the FMP text: harvest allocation in the north east corner of the Forest where there were more creeks than average; and forecast reserves that were extended beyond allocation boundaries to simplify mapped boundaries. A difference was evident between the methodology for reserve estimates included in the strategic modelling and the forecast reserves on operational maps and in Table FMP-19. Given that discrepancies between forecast and projected reserves reported in Table FMP-19 were evident in both FMPs, specific attention is warranted in

this area during preparation of the 2010-2020 FMP to increase consistency in forecasts. It is suggested that Tembec review and revise their estimates of areas reserved from harvesting for the 2010-2020 FMP and accommodate all foreseeable values protection as appropriate for the Smooth Rock Falls Forest. Methodology for estimating strategic planning reserve area must be consistent with reserves being identified in forecasted operations to allow for a meaningful comparison of projected and planned reserve areas.

Additional improvements in strategic modelling assumptions were evident between the 2000-2005 FMP and the 2005-2010 FMP. Revisions to unharvested volume percentages, removal of upper clearcut harvest operability limits, and the relaxing of harvest area constraints by forest unit were evident, therefore no strategic modelling related audit suggestion is warranted in these areas.

The 2000-2005 FMP provided a good discussion of the assessment of forest sustainability for all

management alternatives. Forest diversity indices (Shannon-Weiner Heterogeneity, Simpson Heterogeneity and Shannon Index of Evenness) were used as calculated non-spatially in SFMM for forest unit, age class and wildlife habitat distributions. All management alternatives project indices well within the estimated Bounds of Natural Variation, and exhibited trends similar to the natural benchmark scenario. The analysis of forest diversity indices would be more complete and meaningful if the available forest unit area and age classes (by groupings) were analyzed, rather than documenting the forest diversity indices included in SFMM which are not meaningful indicators. During preparation of the 2010-2020 FMP, in accordance with the FMPM (2004), the actual forest unit area by age classes will be analyzed in addition to wildlife habitat for selected wildlife species in lieu of using the forest diversity indices required by the FMPM (1996). Strategic modelling supported that all management alternatives were considered to pass the test of forest sustainability. This conclusion was not reported in Table FMP-13 of the 2000-2005 FMP as required by the FMPM, but was correctly included in the 2005-2010 FMP.

Lack of quantifiable objective targets limited the depth of the objective achievement discussion. A thoughtful scoring system was used to relatively evaluate and rank management alternatives. The ranking of management alternatives was discussed and supported by the planning team, MNR District and Regional staff and the LCC. Minor compromises in objective achievement were evident when all targets could not be met at the same time (i.e. timber volumes, wildlife habitat).

Documentation of the analysis of management alternatives was accurate. Minor documentation errors were observed in the FMP text that did not affect forest sustainability. Barren and Scattered (B&S) areas were omitted from Table FMP-11 and incorrectly reported by ownership in Table FMP-2. Crown forest must be split into Managed or Unmanaged ownership categories in Table FMP-2. Past plan harvest area and volumes were not reported in tabular (FMP-15) and graphic formats as required by the FMPM (1996) in either the 2000-2005 FMP or the 2005-2010 FMP. Reporting past plan harvest area is not a requirement of the FMPM (2004), therefore no recommendation is directed at preparation of the 2010-2020 FMP.

Percentage of AHA utilized was not included in the 2000-2005 FMP as an indicator of forest sustainability as required by the FMPM (1996). Upon further investigation, this indicator of forest sustainability was reported correctly in the 2005-2010 FMP, therefore no recommendation is warranted. The audit team has included Recommendation 21 in Section 3.7 to ensure all the information is completed in the Year Ten annual report.

Suggestion 4: Tembec should consider the following during strategic planning and modelling for the 2010-2020 Forest Management Plan:

- **Reconciling natural succession with yield curves at points before and after succession.**
- **Analyzing the available forest unit area and age class groupings over time in the assessment of forest sustainability.**
- **Revising areas reserved from harvesting to accommodate foreseeable values protection and removing projected operational bypass percentages.**
- **Maintaining consistent methodology for identification of projected (SFMM) reserve area and forecast operational reserve area.**
- **Accurately reporting the land base, including low-stocked stands, in forest management plan tables.**

The socio-economic analysis of the management alternatives was reviewed by the planning team. Members of the LCC were provided with an opportunity to attend an MNR Socio-economic Impact Model (SEIM) training workshop and two members participated. There was no record of an LCC review of the SEIM analysis, but the LCC did review the analysis of management alternatives and provided input.

Eligibility criteria were included in the 2000-2005 FMP for harvest, renewal and tending. Harvest criteria did not include reference to potential harvest opportunities in areas of natural disturbances. The 2005-2010 FMP included general text references that future salvage operations may be considered in areas of aspen decline or tent caterpillar infestation, but did not reference these naturally disturbed areas in the eligibility criteria specifically. This is discussed further in Section 3.8.

Suggestion 5: Tembec should include known natural disturbances in harvest eligibility and selection criteria to allow for fibre recovery in the event of natural disturbances in the 2010-2020 Forest Management Plan.

Primary Road Planning was reviewed in the 2000-2005 FMP. One primary road to the northeast corner of the Forest (over the Little Abitibi River) was planned in the 2000-2005 FMP but became an issue because of remote tourism concerns (contrary to the Cochrane District Remote Wilderness Tourism Strategy) and the proposed corridor crossed the Little Abitibi Provincial Park, which at the time was unclassified. The primary road proposal was withdrawn until these issues could be resolved which was projected to be before the next planning period. Not all the issues were resolved before the 2005-2010 FMP was approved and the road proposal was removed again. According to interviews with MNR and Tembec, a major amendment to the 2005-2010 FMP will be required to cross over the Little Abitibi River and through the Little Abitibi Provincial Park.

3.3.7 Operational Planning

AOC Planning

Within areas selected for forest management operations, identified values are afforded protection through AOCs, the implementation of specified prescriptions that are applied to defined geographic areas surrounding or adjacent to the identified value.

Area of Concern (AOC) planning begins with the timely identification of values prior to planning. The collection of values information is MNR's responsibility. New values are entered into the Natural Resource Values Information System (NRVIS), which MNR maintains. Values maps are then produced which are used to ensure that forest management activities are planned in such a way as to ensure potential adverse impacts to values are minimized.

The process to determine high potential cultural heritage areas was initiated during the audit period in preparation for the 2005-2010 FMP. The initial step in the process involves the application of a model to the Forest's land base by the Provincial Cultural Heritage Specialist. Unfortunately the Provincial position had been

vacant for about a year and there was a backlog of SFLs needing application of the model to determine high potential areas for cultural heritage values. As a result of this, the initial assessment for high potential cultural heritage areas was not received by the planning team until July 2004, well into the planning process. Through miscommunication and misunderstanding no further work was done to "net down" the high potential cultural heritage values before the 2005-2010 FMP was approved. A commitment was made in the 2005-2010 FMP to complete the process during plan implementation. The "netting down" process is proposed to be completed by Tembec with the planning team and the Provincial Culture Heritage Specialist during the 2005-2010 FMP implementation period.

The audit team checked the NRVIS database and noted a number of new values identified by MNR and determined that the values had been properly stored in the electronic data base. However, during the term of the audit, several deficiencies were noted in the values collection process as noted below.

The audit team determined that although Moose Aquatic Feeding Area (MAFA) surveys were conducted in 1999 in preparation for the 2000-2005 FMP, no stick nest surveys for eagle, heron or osprey were conducted for consideration in planning nor were surveys undertaken to document caribou winter habitat usage on the Forest. This apparently was because no funding was available to conduct the surveys.

Recommendation 5: The Ministry of Natural Resources must provide adequate funding to conduct necessary non-timber values surveys to ensure values in areas of proposed forest management activities are incorporated into planning and adequately protected.

The Ministry of Natural Resources (MNR) did conduct MAFA, stick nest and caribou habitat surveys on the Smooth Rock Falls Forest in 2004 in preparation for the 2005-2010 FMP.

The audit team was told that existing survey information on woodland caribou habitat had not been entered into NRVIS because Provincial data standards for the entry of these values had not been finalized. It would seem prudent for MNR to

finalize the data standards and enter these data as soon as possible to ensure these values are properly addressed through the AOC planning process. The information should then be available provincially for use in the woodland caribou recovery strategy.

Recommendation 6: Corporate Ministry of Natural Resources must make every effort to finalize woodland caribou values information data standards.

Cochrane District MNR surveys for stick nests in the winter, and MAFAs in the summer. The Ministry of Natural Resources' manual on wildlife habitat survey techniques suggests that stick nest and MAFA surveys should be flown at the same time if requirements can be met (e.g. access to a helicopter, full survey crew, etc.). This makes sense as stick nests are usually close to water, which is where surveys are conducted for MAFAs. This would also be more effective since nests that are encountered can be checked for occupancy, which is not possible with winter surveys.

Suggestion 6: The Ministry of Natural Resources should ensure Moose Aquatic Feeding Areas and stick nest surveys are combined in areas of proposed harvest when requirements for the methodology are met.

Where values were identified which could be adversely affected by forest management activities, specific prescriptions were applied within AOCs where the appropriate guideline provided specific direction (e.g. a 120-meter shoreline reserve on a MAFA). Where specific direction for protection of a value was not included in a guideline (e.g. Native hunting and trapping concerns), specific prescriptions were developed to meet site conditions. Tertiary road restrictions were also found in the prescriptions.

The audit team noted an innovative approach to prescription development for values identified by the Taykwa Tagamou Nation. Primarily consisting of hunting and trapping concerns close to water, these values were protected with a two-part prescription: a variable width reserve dictated by the guidelines governing water quality and fish habitat concerns, augmented with a modified prescription outside the reserve that was negotiated directly with a representative of Taykwa Tagamou Nation at the time of

operations. This ensured that site conditions and other variables could be considered for the modified portion of the prescription before implementation. A deficiency of this approach is that the specifics of the modified portion of the prescription were not documented in the planning process (i.e. AWS).

Recommendation 7: Tembec must ensure that the specifics of the modified portion of hunting and trapping concern prescriptions are determined prior to Annual Work Schedule submission to the Ministry of Natural Resources.

Silviculture

There are several management objectives in the 2000-2005 FMP related to silviculture including: maintenance of forest units, adhering to silviculture strategies, applying CLAAG on appropriate sites and reducing areas treated by herbicide. These objectives were adequate for directing silviculture operations during the term.

As a means of determining whether management objectives related to silviculture can be achieved, there must be a strong correlation between the post-harvest transition rules in Table FMP-16, the amounts planned for harvest by forest unit in Table FMP-18, and the forecast levels of renewal and tending in Table FMP-25. In this case, overall levels of forecast renewal and tending in Table FMP-25 should allow achievement of management objectives. However, it appears that Table FMP-25 was not correctly completed, as Future Forest Unit Areas are identical in area to Planned Harvest Areas from Table FMP-18. This should not occur as post harvest forest unit transitions are expected. For example, according to Table FMP-25 the 192 hectares of Poplar Mix forest unit (Figure 7) planned to be harvested in the 2000-2005 term are all expected to regenerate to Poplar Mix in the future, whereas Table FMP-16 (and Figure A-4) shows 45% succeeding to Poplar Pure following harvest. Therefore, Table FMP-25 does not reflect planned transitions. This is also the case in the 2005-2010 FMP.

Recommendation 8: Tembec must ensure that Forest Management Plan Table FMP-25 reflects the trends of the Selected Management Alternative including expected post-harvest transitions.



Figure 7. Typical poplar mixed forest unit on the Forest.

Changes in forest units between the 1995-2000 Timber Management Plan (TMP) and the 2000-2005 FMP allowed for the creation of SGRs that are more site specific. As a result, the number of SGRs in the 2000-2005 FMP increased substantially from the 1995-2000 TMP (in 1995 there were eight SGRs; in 2000 there were over 70 SGRs in the original 2000-2005 FMP submission and several additional SGRs were included through amendments). The forest units have also been updated in the 2005-2010 FMP; this has led to further changes in SGRs.

The SGRs in the 2000-2005 FMP were not all developed within the requirements of the FMPM (1996, page A-56): "for each current Forest Unit-Site Type combination the silviculture treatments must be organized into a Silviculture Treatment Package that will result in the predicted forest condition". For example, SGR #SU-111-SU-E incorporates Site Types 9 (70%) and 6b (30%). The natural regeneration treatment in this SGR is Not Recommended on Site Type 6b according to

the silviculture guide¹³. However, due to local standards adopted for SGRs, no silvicultural exceptions were identified in the 2000-2005 FMP.

The 2005-2010 FMP also includes SGRs with combined site types. For the 2005-2010 FMP, specific MNR Regional direction was provided, allowing grouping of site types in single treatment packages provided professional judgment is used to ensure Not Recommended treatments do not occur. The audit team agrees to this practical approach to creating SGRs but did not see evidence that pre-harvest inspections led to required changes in the SGRs and/or the Forest Operations Program (FOPs). This issue is discussed in Section 3.3.11 and concludes in Section 3.4.3 as a component of Recommendation 16.

The SGRs in both the 2000-2005 FMP and 2005-2010 FMP list a preferred treatment for each

¹³ MNR. 1997. A Silvicultural Guide to Managing for Black Spruce, Jack Pine and Aspen on Boreal Forest Ecosites in Ontario. Queen's Printer for Ontario.

management intensity (i.e. extensive, basic and intensive). For example, the 2000-2005 FMP has three preferred treatments to maintain the Spruce Intensive forest unit. However, only one preferred treatment (expected to be prescribed) should be identified for each current/future forest combination. This allows a ready link between the planned renewal program and the strategic direction in the FMP.

Suggestion 7: Tembec should identify only one preferred silviculture treatment package for each current/future forest unit combination.

As noted, the 2000-2005 FMP was amended to add SGRs. Amendments included:

- Cut-to-length logging option added to several SGRs;
- SGRs added to maintain conifer in harvested mixedwood stands that may have been converted to a poplar-dominated forest unit.
- SGRs added mainly to allow Seed Tree and Group Seed Tree options for sites where CLAAG is not appropriate.

The final amendment listed above was developed as a result of the 2000 IFA findings. The audit team is pleased to see that Tembec incorporated these changes to the 2000-2005 FMP and has included alternative natural regeneration treatments in the 2005-2010 FMP. Unfortunately, application of the Group Seed Tree prescription viewed during the field audit was less than stellar. In one case an inappropriate site type was chosen (Stop 24, Block 93) (Figure 8), which did not have a receptive seed bed; in the other case the seed tree groups were ineffectual as they were located along the block boundary adjacent to standing timber (Stop 32, Block 125). Section 3.4.3 discusses this issue further.

Stronger linkages should have been made in the 2000-2005 FMP between the planned renewal program and the access plan. Difficult access is often referenced in pertinent documents and by Tembec staff as a limit to renewal options on the Forest. This should not be the case. When access is an issue (identified as an issue in the 2000-2005 FMP), more detailed operational planning is required to ensure that access will be



Figure 8. Group Seed Tree treatment on Block 93.

available to support the artificial renewal program. This topic is linked to the renewal support discussion and Recommendation 9.

The renewal support requirements have been minimally documented in the 2000-2005 FMP and did not fully allow for the planned renewal program. For example, Table FMP-19 indicated 328 hectares of Mixed Conifer forest unit to be harvested; a significant portion of this forest unit was dominated by jack pine. However, no jack pine seed was planned for collection in the FMP. Tembec produced some jack pine seedlings during the term; however, Block 61 (Stop 1), which had a relatively high pre-harvest jack pine composition, was renewed mainly to white and black spruce (about 325,000 seedlings) with only 15,400 jack pine seedlings available.

Block 78 also showed elements of inadequate renewal support planning. This block was scheduled for planting in 2001 but was not planted due to lack of planting stock (Figure 9). According to Tembec staff renewal of this block is

still outstanding. Also, difficult access was cited by Tembec staff as the reason Block 39 (Stop 12) was seeded instead of planted. The seeding treatment was largely ineffective and remedial treatments will likely be required.

More thorough renewal support planning is provided in the 2005-2010 FMP; however, considering the access issue discussed above, the 2000-2005 FMP objective to maintain forest units (there is minimal jack pine on the Smooth Rock Falls Forest), and the examples of inadequate planning given above, the audit team developed the following recommendation and urges Tembec to complete renewal activities/remedial treatments on Blocks 78 and 39 as soon as possible.

Recommendation 9: Tembec must ensure that the artificial renewal program planning includes considerations for renewal support and access.



Figure 9. Block 78 not planted as scheduled due to lack of planting stock.

The 2000-2005 FMP contains a monitoring section that includes:

- A description of the Forest Operations Compliance Information System (FOCIS), including provisions for monitoring in AOCs;
- A note that the FMP contains no exceptions and that no monitoring plan was devised for exceptions;
- A suggestion that regeneration assessments will be conducted as per the Free-Growing Regeneration Assessment Manual for Ontario (Draft)¹⁴.

Regeneration surveys are to be conducted extensively each year to determine where intensive surveys need to take place. However, it is not clear in the 2000-2005 FMP how soon after harvest the surveys will be completed. This deficiency in documentation has been corrected in the 2005-2010 FMP.

Roads

Thirty-five kilometres of new secondary roads were approved in the 2000-2005 FMP and in the opinion of the audit team supported the development of the unit and were necessary to achieve plan objectives with one caveat. Tembec has a tendency to build winter-access-only roads to sites which should have been planned for intensive forest management (i.e. well-drained, productive upland sites). As a consequence, poor access prevents the sites from being managed to their potential. This is addressed in Recommendation 9.

Unresolved issues involving the Little Abitibi Provincial Park and potential conflicts with the Approved Cochrane District Remote (Wilderness) Tourism Strategy resulted in dropping the only primary road proposal in the 2000-2005 FMP. Access to the northeast corner of the Smooth Rock Falls Forest that the proposed primary road would have provided is of critical strategic importance in the future. Issues concerning this access remain unresolved in the 2005-2010 FMP although an alternate route was selected. As previously stated, interviews with MNR and Tembec indicated that a major amendment to the 2005-2010 FMP will be required to cross over the

Little Abitibi River and through the Little Abitibi Provincial Park.

Harvest

Based on a detailed examination of the stand lists, the allocations appear to fully meet eligibility criteria by forest unit and age class. The selection criteria for harvest allocations expand upon and adhere to the eligibility criteria of the Selected Management Alternative by including proximity to existing access roads or to planned access. The allocations were consolidated from a scatter of eligible stands provided by SFMM to a number of operational blocks with a focus on the access and development of harvesting operations in the northeast corner of the Forest.

All of the areas selected for harvest, renewal and tending are consistent with the selection criteria.

Approximately 28% of the amount of planned harvest area was selected as contingency allocations. Text in the 2000-2005 FMP fairly describes the use of this area as replacement timber in the event that circumstances beyond the control of the Company prevent the harvest of some of the areas selected for forest harvesting operations.

The planned harvest areas (allocated areas) matched the selected management alternative fairly well, particularly for the larger conifer dominated forest units. Ninety-seven percent of the AHA was planned for harvest. However, the planned harvest area was significantly under-allocated (44%) in the Poplar Mix forest unit due to the unavailability of stands within the selected harvest areas.

The harvest on the Smooth Rock Falls Forest during the audit period did not meet the wood supply objectives of Tembec. The supply of poplar veneer to Norbord Industries Inc. (Norbord) met the wood supply directive, however the wood supply to Grant Forest Products Inc. (Grant) was significantly less than the committed volume.

The targeted non-veneer quality aspen wood volume to Grant in Appendix E of the Sustainable Forest Licence was based on the accelerated harvest levels in the previous TMP and exceeded even the forecasted volume in the 2000-2005 FMP. Because the hardwood resource is so

¹⁴ MNR. 2005. Well-spaced Free-growing Regeneration Assessment Procedure for Ontario. NWSI Technical Report TR-000. 33 pp. + Appendices.

diffusely distributed in the mixedwood forest units, meeting hardwood targets is contingent on harvesting all of the allocated areas. If the harvest of the dominant forest units is reduced, the hardwood fibre supply drops. This is discussed further in Section 3.8.

The required table of revenues and expenditures (Table FMP-27) was completed according to FMPM (1996) requirements. Forecast expenditures exceed revenues in this table by roughly \$400,000 using the forecast Forest Renewal Trust Fund (FRTF) rate of \$3.97 per cubic meter of conifer. The rationale for this was to draw down a large accumulated surplus.

The text of the FMP fails to adequately document or discuss this issue in light of the circumstances surrounding the FRTF prior to and during the term of the audit period. The Company had accumulated a very large surplus in its FRTF related to the heavy reliance on CLAAG and other types of natural regeneration on the Forest. In light of this, a hiatus of FRTF contributions was taken to draw down the surplus. The re-establishment of a suitable contribution rate was also the topic of some controversy between the MNR and Tembec (see Section 3.8 and Recommendation 24). The contexts of these decisions/discussions were not documented adequately in the 2000-2005 FMP.

Independent Forest Audit

The 2005-2010 FMP addressed the 2000 Independent Forest Audit (IFA) through a summary under three groupings of the audit recommendations: renewal, habitat protection and information. The complete audit report was contained in the 2005-2010 FMP. Ten of the 13 recommendations were addressed either in the preparation of the FMP or during the planning process itself. In Section 3.8 of this report, Table 9 provides a summary of the completion status of the 2000 IFA recommendations and details evidence whether the audit recommendations have been addressed and/or are being addressed.

3.3.8 Plan Review, Approval

The audit team confirmed the necessary signature approvals of the Plan Author (R.P.F.), the District Manager and the Regional Director and the inclusion of the required FMP Plan Contributors' page. The 2000-2005 FMP was not developed on time nor did it meet submission dates as per the

Terms of Reference. However, the duration of each stage of plan review and approval, that is review of the plans, preparation of the lists of alterations, public review and addressing the required alterations, met the time requirements specified in the FMPM (1996). The final plan was submitted late due to negotiations with a First Nation and approved October 19, 2000. As a result of the plan delay, the MNR District Manager approved an Exemption Record to allow Tembec to conduct planting activities in the spring/summer of 2000.

Required alterations to the plan were incorporated in the FMP and plan reviewers were part of the planning team. During interviews, a planning team member expressed concern over the role of team members as reviewers. The individual felt that in some instances, planning team members offered no comment on issues during the planning process, but later expressed dissatisfaction in regards to these issues in their role as plan reviewers. The individual found this situation to be counterproductive and demoralizing. Similar observations have been encountered on other audits, but in this case the audit team felt the limited sample size precluded further conclusion.

3.3.9 Plan Amendments

The 2000-2005 Smooth Rock Falls Forest FMP contained no major amendments, one minor amendment and 24 administrative amendments. All examined amendment requests and approvals were listed in the List of Amendments, approved by the District Manager and recorded in a master list. All amendments but one were prepared by the Area Forester, who did not achieve R.P.F. status until April 24, 2002. The lone amendment prepared by the plan author was eventually withdrawn. Only nine amendments were certified by the Area Forester once R.P.F. status was acquired.

Recommendation 10: Tembec must ensure amendments are prepared and certified by a Registered Professional Forester as per the Forest Management Planning Manual requirements.

As per agreement with the LCC, all amendments (major, minor and administrative) were reviewed by the LCC prior to approval. A public consultation process was held for the one minor amendment that was initiated in 2000.

The FMPM requires copies of major and minor amendments to be distributed to all locations where approved copies of the FMP reside as soon as they are approved, and copies of administrative amendments to be distributed once a year. Evidence indicated that the amendments that occurred during the 2000-2001 year were distributed to the locations required by the FMPM. The records also indicate that the minor amendment (Amendment #1) was not distributed until May 31, 2001, almost four months after it was approved. Interviews with MNR indicated that the first 13 amendments were sent to the locations specified in the FMPM; however the remaining amendments have not yet been distributed.

Recommendation 11: The Ministry of Natural Resources must ensure that amendments are distributed as per Forest Management Planning Manual requirements.

During interviews, LCC members expressed concerns over a perceived problem of too many amendments during implementation of the Smooth Rock Falls FMP. An analysis of the number and type of amendments requested indicated that the number and nature of the amendments was reasonable (Table 3). Many plan amendments were related to necessary adjustments to road and water-crossing locations as a result of unusually specific mapping of tertiary roads in the 2000-2005 FMP.

Figure 10 illustrates the submission dates of amendments and the approval time associated with each. The distributions of amendments throughout the plan implementation period were reasonable. The approval period for many of the amendments was also reasonable, but a significant problem appears to have developed in late 2001 through early 2002. During interviews, Tembec and MNR staff indicated that a number of issues may have caused this including:

- MNR staff turnover (five foresters in a single year),
- Lack of consistent approach to amendment requests,
- Monthly LCC meetings with a ten-day agenda deadline (resulting in delays of up to six weeks), and
- Incomplete submission packages.

Table 3. Quantity and Nature of Amendments during the Audit Period.

Description of Amendment	Type of Amendment	
	Minor	Administrative
Addition of Block	1	
Addition or change re: AOC		3
Revision to SGRs		3
Roads and Water Crossings:		
Addition or change re: water crossing		8
Addition or change re: tertiary road		7
Change to main road location		1
Change to road maintenance		1
Addition of unmapped stream		1
	1	24

It is the opinion of the audit team that LCC members' concerns over amendments are primarily a result of the large workload associated with processing the amendments for four forests within the Cochrane District, rather than an unusual number of amendments for any one forest. The need to review the LCC workload has been addressed in Section 2.1 as Recommendation 1.

Contingency Plans

There were no contingency plans developed during the audit term.

3.3.11 Annual Work Schedules

Annual Work Schedules (AWS) were found to be brief and to the point. The quality of presentation, maps, and attachments was very high.

The audit team noted that a large amount of excess area for both harvest and silviculture is identified in each AWS. This is reportedly to provide for operational flexibility. However, the amounts greatly exceeded capacity (e.g. 27% of the 2001-2002 AWS was actually harvested, 22% of 2002-2003 AWS was actually harvested).

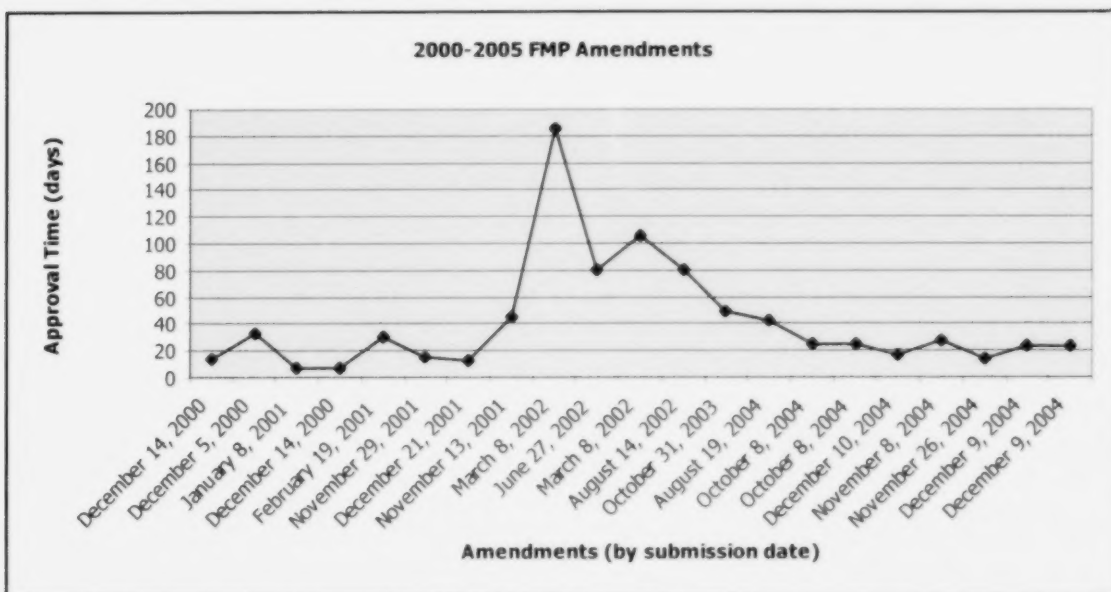


Figure 10. Approval time for amendments to the 2000-2005 FMP.

The amount of "extra area" in the AWS was deemed excessive and beyond what should be practically needed for operational flexibility. This makes the document less useful for anyone trying to determine what activities are likely going to happen in a particular year. Tembec's need for operational flexibility must be balanced against the public's need for greater certainty to help plan their own activities, therefore the audit team makes the following suggestion.

Suggestion 8: Tembec should try to include no more than twice the area of operations which are actually intended to be implemented during the year in the respective Annual Work Schedule.

Activities scheduled in the AWSs were consistent with those in the FMP. Details of implementation (of AOC prescriptions for example) in the AWS often referenced the plan rather than reiterating prescription verbatim.

The process of revising the AWS (and amending the FMP) was well executed and in keeping with the terms of the FMPM. Some general dissatisfaction on the part of the MNR regarding the number of revisions required and on Tembec's part regarding the timeliness of approvals was expressed. The audit team believes that the approval process of AWS revisions is working as intended.

The annual compliance plans were reviewed and found to be consistent with the Guideline for Forest Industry Compliance Planning¹⁵ and complimentary to the five-year compliance plans.

The FOPs in the AWSs consisted of a title page certified by an R.P.F. with text regarding the certification of the operations. The AWSs also included stand listings that contained SGR/FOP numbers for all stands planned for harvest, site preparation and renewal and tending operations. In summary, FOPs were completed as per the FMPM (1996), were consistent with the SGRs in the 2000-2005 FMP (including amendments) and were completed in all AWSs prior to applicable operations commencing on site. Nevertheless, there is room for improvement as is discussed below.

The text contained on the certified AWS title page includes the following statement "...not all sites were visited to confirm or verify proposed prescriptions, but based on professional judgment, past experience on similar sites and local expertise, it is our opinion that the treatment described is appropriate for the site condition as they are currently known and will produce the expected results". This statement suggests that Tembec foresters felt that the inventory adequately reflected the site types. However, this

¹⁵ MNR. 1998. Guideline for Forest Industry Compliance Planning. 13 pp. + Appendix.

was not always the case and it was determined that FOPs were not revised when pre-harvest assessments indicated a site type that differed from the expected. This issue is discussed in Section 3.4.3 and concludes with Recommendation 16.

Forest Operations Prescriptions (FOPs) were changed in the 2004-2005 AWS to allow Group Seed Tree renewal treatment in areas slated for in-bush chipping. As noted, one of the sites chosen for Group Seed Tree treatment was inappropriate due to lack of a receptive seed bed. Planting is now slated for this area and it is expected that, as a result of Recommendation 16 in Section 3.4.3, pre-harvest assessment information will be utilized when selecting areas for Group Seed Tree treatments in the future.

It was also noted that when FOP changes did occur, they were not always correctly tracked by the Geographic Information System (GIS). Input errors appeared to be the cause.

Suggestion 9: Tembec should develop an Information Management System that is able to accurately track forest management information and activities.

3.4 Plan Implementation

3.4.1 Areas of Concern

A variety of prescriptions within AOCs was examined during the site visit. Values for which the AOC prescriptions had been developed included fish habitat and water quality, MAFAs, Native hunting and trapping sites, an osprey nest site, a cabin LUP, etc. The prescriptions were found to be as planned, and where different, were covered by a plan amendment or compliance report to explain the discrepancy.

3.4.2 Harvest

Harvest operations must be conducted in compliance with all current laws and regulations including the CFSA, and the approved activities of the FMP and AWS.

The audit team inspected 3,395 hectares of harvesting operations (Figure 1) which represented 48% of the total harvest that occurred during the audit period. The level of forest harvest during the audit term will likely be

between 7,000 and 8,000 hectares (pro-rated based on the first four years of reported harvest) (Table 7 in Section 3.7.2). The actual harvest will lag far behind the forecast harvest level of 17,330 hectares. The reasons cited for this significant shortfall in Tembec's Comparison and Trend Analysis of Planned versus Actual Forest Operations Report (TAR) include:

- Several months of downtime at the Cochrane sawmill related to mechanical upgrades, start-up challenges, and market conditions;
- Capacity building issues associated with new harvesting contractors (coincident with the audit term Tembec developed a new contracting relationship with local First Nations);
- Undeveloped access to harvest areas.

As stated in the TAR, higher than expected conifer volumes were achieved. Harvest during the audit term was concentrated in the area north of the town of Cochrane. As access was developed in this previously un-accessed area, harvest followed a progressive approach within the approved harvest allocations. The result of this approach was that a higher proportion of more productive sites were harvested. On this Forest these sites tend to be concentrated within/adjacent to the areas most suitable for road construction (i.e. esker complexes). Therefore the achievement of higher conifer yields is related to the harvest of these more productive sites. The audit team found that all of the harvesting operations viewed during the audit were conducted in accordance with the FMP, the AWS, and FOPs with the exceptions noted in Section 3.4.3 and addressed by Recommendation 15 and Recommendation 16.

Tembec has an excellent system of cut control which forms part of its EMS commitments. Area of Concern (AOC) and regular block boundaries are established using Global Positioning Systems (GPS) and were found to be intact.

The dominant harvest method employed on the Forest was CLAAG. Generally, the harvest method is full-tree to roadside using feller-bunchers and grapple skidders. This harvest method was beneficial for site protection and to facilitate natural forest renewal (Figure 11). This was especially true on spruce lowlands and was ideally suited to large portions of the Smooth Rock Falls Forest.



Figure 11. Black Spruce regeneration of "layering" origin, typical of the Forest. Note the "parent" stump near the centre of the photo.

Although there are no specific guidelines for the application of CLAAG, it is generally accepted that a ratio of the width of travel corridors to residual strips of 1:2 is desirable. This is intended to maximize the protection of advance growth, protect seedbed and minimize site disturbance. The CLAAG harvest that was audited consistently failed to meet this desired ratio, and in some cases the ratio of travel corridors to residual strips was 1:1 or less. Considering that the application of CLAAG is a fundamental element of the forest renewal strategy on the Smooth Rock Falls Forest, this performance is below expectations.

Suggestion 10: Tembec should conduct refresher training with its contractors' feller-buncher operators to ensure that the desired results of CLAAG harvest are clearly conveyed and understood.

Tembec did a good job of site protection overall. The widespread use of CLAAG harvest and the

predominance of winter-only cutting meant that sites were generally well protected.

Based on the large sample of harvest activities examined during the field audit there were incidents of minor site disturbance noted and one site (Block 123) exhibited damage resulting from a trial using the Ponsee Clam Bunk Skidder (Figure 12). This equipment was not suited to the site conditions at the time of the trial. The vast majority of sites examined (which were primarily sensitive lowland areas) were found to be free from site damage due to rutting.

Where roads were built into cut blocks on mineral soil it was noted that post-cut drainage was an issue. The flat terrain of much of the Forest makes it difficult to ensure adequate drainage. However, greater attention should be paid to this aspect to ensure that incidents of ponding water due to road construction are minimized.



Figure 12. Ponsee Clam Bunk Skidder trial area showing site damage (Block 123).

The audit team observed numerous examples of Tembec's efforts to pile logging debris to recover productive land (Figure 13). The pile burning program has been relatively limited to date. While debris management practices have improved over what was observed in older cutovers there is still work to be done to ensure that all of the logging slash on the Forest is managed to minimize the loss of productive land associated with log landings (Figure 14).

During the field tour the audit team was informed by a member of the LCC that there was not widespread support for pile burning because of the interference with hunters and the perceived destruction of potential or actual animal denning sites in the slash piles. The key element of slash management is to reduce the amount of ground covered by slash through piling, piling and burning, or slash distribution.

Recommendation 12: Tembec must ensure that slash management through piling, piling and burning, or slash distribution is carried out wherever logging slash is accumulated.



Figure 13. Typical example of slash piling viewed on the Forest (Block 108).



Figure 14. Good slash pile burning viewed on the Forest (Block 108).

Based on the field audit of harvested sites, the audit team found that wood utilization was not up to provincial standards. There are wasteful practices which are apparently tolerated based on the "in compliance" FOCIS and/or Forest Operations Information Program (FOIP) reports submitted for these areas. The audit team observed:

- Excessive amounts of road side wood left as pile bottoms;
- Frequent piles of tree length timber left at roadside;
- Numerous merchantable cut full trees left in the cutover (there were very few incidents of unskidded bundles noted);
- Unutilized species such as birch, tamarack and especially balsam poplar for which the company has both a license and cut approval but for which there was no market available at time of harvest, (this timber was often left where felled as single trees or bundles, or at road side);
- Consistent bypass of merchantable trees of the above noted species, and occasionally of "more marketable" species such as aspen, for

which the company has both license and approval;

- Stump height was not excessive but it consistently exceeded the scaling manual standards for no apparent reason other than deep snow (Figure 15).

Most of the issues noted in respect of forest harvesting operations are associated with winter harvesting operations and winter-only access roads. It is more difficult to fully meet provincial standards when there is no opportunity for clean-up of the site. Similarly it is more difficult to achieve stump heights which are compliant with the scaling manual when there is deep snow. Slash management must be conducted during the period of available access since a return to most sites is not feasible.

The extensive style of forest management practiced on the Smooth Rock Falls Forest is accepted by both Tembec and MNR. In the opinion of the audit team, un-documented local tolerances for items such as poor utilization and wasteful practices, and un-managed logging slash have evolved over time. Evidence of this is the



Figure 15. (Top row) High stumps; (bottom left) 0.2 hectares of bypass of merchantable aspen trees; (bottom right) Tree-length black spruce left at roadside.

fact that on sites where there were obvious issues in respect of wasteful practices, fully compliant FOCIS/FOIP reports were filed by Tembec and accepted without challenge by MNR.

Given the current environment of standardization of compliance monitoring through training and certification, the differing standards on the Smooth Rock Falls Forest clearly stand out. When there are no markets for particular species it is acceptable to by-pass these species without committing a wasteful practice infraction provided that this is clearly documented in the Forest Management Plan.

Recommendation 13: Tembec and the Ministry of Natural Resources must closely monitor compliance to utilization standards set out in the Scaling Manual.

There are no such provisions to "document" local standards regarding other aspects of wasteful practices such as leaving pile bottoms or other missed roadside timber, or high stumps. It is therefore necessary to tighten up expectations on the part of both the Company and the MNR regarding wasteful practices and to ensure that the standards being achieved not only meet local expectations but can withstand outside scrutiny.

The audit team believes that part of the solution lies in greater diligence on the part of operators, supervisors, and compliance inspectors to improve the standard of practice in respect of timber utilization.

Recommendation 14: Tembec must review utilization standards with its contractors and supervisors.

During the course of the field tour the audit team was made aware of new and strengthening markets for species which have been difficult to sell such as tamarack, birch and balsam poplar.

Suggestion 11: Tembec should take full advantage of all developing tree species markets.

3.4.3 Renewal

The audit team viewed a sampling of renewal activities from those areas where activities were conducted during the five-year term of the audit.

This included examples from each type of renewal activity and from each of the five years being audited to assess the success of regeneration prescriptions.

During the audit term a CLAAG pattern of harvesting was employed on almost all sites on the Smooth Rock Falls Forest to minimize site disturbance and maximize retention of advance growth. When suitable amounts of advance growth spruce remained following harvest (usually on the lowland sites), the area was deemed to be regenerating via the CLAAG methodology (Figure 16). Conversely, when post-harvest stands did not contain suitable amounts of advance growth spruce, alternative renewal treatments were applied (i.e. seeding or planting) (Figure 17).

Renewal activities reviewed were, for the most part, conducted as planned in the 2000-2005 FMP, documented in the AWSs/ARs and effective (Figure 18). This was particularly true where the CLAAG pattern of harvesting protected adequate amounts of spruce advanced regeneration. However, as a result of the general strategy employed by Tembec to utilize this pattern on all sites and prescribe renewal treatments post-harvest, the implementation of the artificial renewal program during the audit term appeared to be makeshift versus planned. This was mainly the result of the silviculture planning deficiencies described in Section 3.3.7, which led to missed planting opportunities and the selection of ineffective treatments during the term.

As a result of one recommendation in the 2000 IFA, Tembec was to implement alternative renewal treatments for those areas where advance growth spruce was inadequate to renew the site. As discussed in Section 3.3.7, Tembec's attempt at completing Group Seed Tree treatments on two sites during the audit term was not effective. This was mainly due to poor site selection and inadequate operator training.

Recommendation 15: Tembec must ensure that renewal treatments are based on site specific information and operators are appropriately trained to implement prescriptions correctly.



Figure 16. CLAAG pattern of harvesting viewed on Block 12.



Figure 17. Planted seedlings in Block 61.

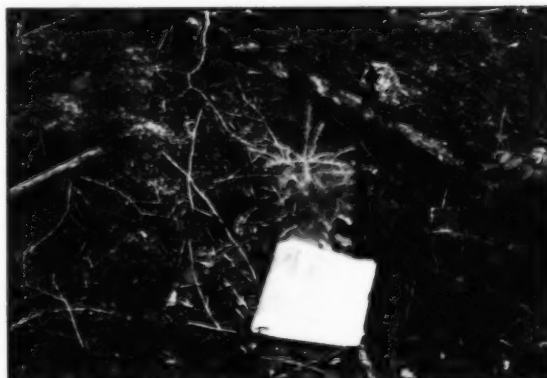


Figure 18. Healthy seedling planted in Block 108.

The CLAAG pattern of harvesting on most upland stands viewed contributed to the maintenance of thick duff layers and residual trees/debris. In some cases the thick duff led to poor microsite availability and residual trees/debris reduced plantable area. This may reduce the effectiveness of tending treatments, and will likely lead to reduced stocking in future stands. In general, site potential is not being maximized (Figure 19). As a result, the audit team believes that the CLAAG pattern of harvesting should not be conducted in areas where artificial renewal is planned to occur. Rather, the artificial renewal program should be aimed at producing appropriate microsites for planting/seeding and maximizing area available for immediate regeneration.

The artificial renewal program was also hampered in some instances by poor quality planting stock, inconsistent planting direction (e.g. planting of tertiary road beds) and capricious planting quality (e.g. missed spots, poor microsite selection) (Figure 20). As a result, the following suggestion was developed and Recommendation 16 is given.

Suggestion 12: Tembec should implement an artificial renewal program aimed at maximizing site potential and occupancy.



Figure 19. Example of where site potential is not being maximized (Block 61).



Figure 20. (Top left) Planting of a tertiary road bed in Block 61; (top right) Incorrect planting technique; (bottom left) Poor planting stock; (bottom right) Example of poor planting microsite.

Pre-harvest assessment information did not lead to FOP changes prior to operations commencing. For example, FOPs for CLAAG areas were not revised when inadequate amounts of spruce advanced regeneration was determined. This contradicts MNR Regional direction regarding SGR development as discussed in Section 3.3.7 and could lead to silviculture exceptions occurring on the Smooth Rock Falls Forest.

Recommendation 16: Tembec must revise Forest Operation Prescriptions prior to operations commencing when the original Forest Operation Prescription is inappropriate for actual site conditions.

Based on the field audit there does not appear to be a gap between planned renewal activities and actual activities completed in the field. Field visits included areas where chemical and mechanical

site preparation methods were used. Site disturbance was minimized on these sites. No compliance issues were noted for renewal, nor were any witnessed during the field audit.

3.4.4 Tending and Protection

Tending operations viewed were completed as planned in the 2000-2005 FMP and documented in the AWSs/ARs. Protection operations were not conducted during the term. There were no evident gaps between planned and actual amounts of tending activities completed (4,720 hectares versus 3,964 hectares, respectively) (Table 7 in Section 3.7.2). The shortfall was due to planned harvest levels not being met during the term.

Tending during the term consisted mainly of aerial herbicide application with a small amount of ground spray. Tending was effective on most sites (Figure 21); however, there were cases where herbicide needed to be re-applied and there was one instance of non-compliance related to over-application of herbicide. There were also cases where the necessity for spray was not demonstrated. These occurrences were relatively minor and did not warrant a recommendation.

However, considering the objective to reduce herbicide use on the Smooth Rock Falls Forest by local residents and Tembec's FSC certification, the audit team urges Tembec to reduce instances of herbicide re-application and non-compliance by increasing the effectiveness of the tending program. Suggestion 15 in Section 3.6.1 was developed to aid Tembec in this regard.

3.4.5 Renewal Support

Adequate spruce seed was available during the term. However, as discussed in Section 3.3.7, the 2000-2005 FMP contained no requirements for jack pine seed/stock. The 2005-2010 FMP has corrected this deficiency and adequate amounts of jack pine seed should be available for the 2005-2010 term.

As discussed in Section 3.4.3, poor stock quality was sometimes an issue during the audit term. The new supplier used near the end of the audit term by Tembec had a consistently higher quality product. This was evident in the field and through reports by an independent plant stock quality assessor.



Figure 21. Example of where tending was effective (Block P).

3.4.6 Access

A number of secondary and tertiary roads built during the audit term were inspected by the audit team. The roads were built as planned and to appropriate standards. The lack of good road building sources in the Forest (road fill is often silty sand) does present challenges with respect to erosion control along road shoulders but the audit team did not see many examples of problems.

Winter water crossings were well done with little evidence of riparian vegetation disturbance and good removal of fill logs from the streambed (Figure 22). At a few locations, merchantable fill logs, which had been scaled, had not been hauled after removal from the winter crossings (Figure 23). While this is understandable in many cases because of the problem of access on winter roads and the timing of fill log removal, these piles of merchantable trees provide a poor image of forest management to the general public.



Figure 22. Site of a well done winter water-crossing.



Figure 23. Merchantable fill logs removed from winter water-crossing and left on site.

Suggestion 13: Tembec should make every effort to utilize merchantable fill logs after they are removed from winter water crossings.

All-weather water crossings were generally well done with adequate culvert pipe lengths, good fill slopes to prevent erosion, and good use of filter cloth and rip-rap to help prevent silt entering the water course. Again, because of the scarcity and poor quality of the road building material, slope stabilization, especially at water crossing locations, was a challenge. Tembec has successfully used vegetative mats, scooped from the forest floor by a backhoe and "tamped" into place along the fill slopes beside water crossings, to stabilize these areas quickly. This technique is called "mossing" because there is usually a high moss content to the mat. The vegetative mat roots into the slope and holds the soil well. Unfortunately, the backhoe operators did not always extend the vegetative mat for the entire width of the fill slope proximate to the water-course resulting in some erosion (Figure 24).



Figure 24. Example of "mossing" technique used to stabilize slope around the culvert. Note the erosion that occurred where the "mossing" technique was not applied in the foreground of each photo.

Suggestion 14: Tembec should show backhoe operators the effectiveness of the vegetative mat slope stabilization technique ("mossing") and ensure they apply it at least 30 meters on either side of a water crossing where erodable fill has been used for road construction.

The Category 14 gravel pits that were investigated were properly marked and laid out. The rehabilitation on sections of Category 9 and 10 pits viewed was satisfactory.

3.5 System Support

3.5.1 Human Resources

Tembec holds regular staff meetings to stay up-to-date on current projects. Management executives attend quarterly corporate meetings with company representatives from Tembec's operations in Chapleau, Cochrane and Timmins to discuss and develop action items for the company. Superintendents meet with these managers for weekly operations meetings. The Superintendents also meet with their immediate staff either weekly or monthly as needed. Operations coordinators meet weekly with the contractors to develop action plans. Records of action items from all meetings are maintained and usually make up the agenda for the next meeting as a topic of discussion.

Tembec has also developed an Environmental Management Program Employee Guide which includes a description of all of their environmental policies and programs for employee reference. Employees are required to review the Information Handbook for Employees¹⁶ and sign to confirm their understanding of the information in the handbook. Educational and training backgrounds of Tembec employees were reviewed by the auditors and determined to support their respective job responsibilities.

Interviews with Tembec's Operations Superintendent indicated the Company is very proactive in ensuring that personnel in the field are aware of their responsibilities and are given the information needed to work safely. Contractors and operators working on the Smooth Rock Falls Forest receive Environmental

Management System (EMS) training. The training format includes three modules: EMS policy; Roads/Harvesting; and Emergency Response Plan. Each operator gets an EMS field book that must be available to them at all times while working. Records are maintained regarding locations of all operators in the field.

The Cochrane District MNR is divided into the Cochrane Area and the Iroquois Falls Area. Interviews with MNR indicate that the Cochrane Area team holds monthly staff meetings to update everyone on activities. Minutes are recorded and distributed to team members. A Forest Advisory Team exists in each Area. Many other committees are in place including a Fish & Wildlife Committee, a Lands Advisory Committee, and an Annual Compliance Operations Plan Committee, etc. The various District committees post their minutes on a digital 'shared folder', accessible to all MNR employees. There was evidence suggesting that not all employees were aware of the information available on the 'shared folder', however, these committees are discussed in the staff orientation package recently introduced and the audit team does not feel a recommendation is warranted.

The Ministry of Natural Resources (MNR) has an employee orientation program in place which is available on their intranet site to all employees. Discussions with staff indicated that an orientation package was not always available and in fact, some employees did not receive any formal training or orientation during the audit period when first hired. As stated above, the Cochrane District recently produced a new Staff Orientation package. Training records are also maintained for each employee under a number of knowledge areas including Safety; Core Learning Management; FMP Training; and Enforcement. Job descriptions were also reviewed by the audit team and it was determined that MNR employee educational and training backgrounds supported their job responsibilities.

The audit team was made aware of the Forest Engineering Research Institute of Canada (FERIC) trial on a new technique for forest road construction that took place on a section of the South Abitibi Main Road. The trial and subsequent reports are available through FERIC. The MNR and some LCC members expressed concern about the lack of notification, specifics and progress of the trial. The audit team was

¹⁶ Tembec. 2004. Information Handbook for Employees.

provided a copy of the research and development project and gave a copy to the MNR. The necessary documentation appears to be in place (i.e. the use of the chemical was vetted through the Environmental Management System and the Company received MNR approval for the appropriate Right-of-Way width for the road) but it seems that formal communication of the research project to the MNR was lacking. Since the report is now with the MNR no further action is required other than a reminder that Tembec should keep the MNR informed of research trials occurring on the Forest.

3.5.2 Documentation and Quality Control

Tembec's documentation was well organized and maintained in an efficient manner. In 2001, Tembec's EMS was registered to ISO 14001 and document control met the requirements of this standard. Tembec also maintains a legal library at their Timmins office where the most current versions of documents are maintained on file in the legal library. The audit team had access to all audit information.

Documentation at the MNR office was generally found to be organized and easily accessible to the audit team. There was some concern over the completeness of the record of public consultation for the purpose of the audit. The audit team noted that there was improvement over the course of the audit period. To stress the importance of maintaining complete public consultation records Recommendation 3 in Section 3.2.4 was developed.

3.6 Monitoring

3.6.1 General Monitoring

The silvicultural monitoring program in the 2000-2005 FMP was augmented during the audit term as a result of recommendations in the 2000 IFA. Tembec now has a comprehensive monitoring program for the Smooth Rock Falls Forest that is a significant improvement over the prior term. The monitoring program includes the following surveys:

- Pre- and post-harvest assessments of CLAAG areas;
- Regeneration success surveys including planting quality and survival plots;
- Pre- and post-tending surveys;
- Free-to-grow (FTG) surveying.

Pre- and post-harvest CLAAG assessments were initiated in 2002 as a result of the action plan developed for the 2000 IFA and are now an integral element of the monitoring program. In addition, harvesting contractors complete logging assessments for each block, which are reviewed by Tembec staff. Also, as a first step in identifying CLAAG sites, FRI stratification by Tembec staff is utilized in determining sites appropriate for this treatment.

The regeneration success surveys include survival plots that are established at the time of planting and are re-measured at one and two years post-plant. Naturally regenerating areas are also assessed but the 2000-2005 FMP does not include specifics regarding timing of assessments. The 2005-2010 FMP includes specifics.

The 2000-2005 FMP indicated that pre-tending surveys of naturally regenerating areas are to be completed by the eighth year following harvest. No survey methodology is available in the FMP. According to Tembec staff and records, pre-tending surveys are normally conducted in the seventh or eighth year following harvest. Bearing in mind FTG surveys are to be completed by Year Ten for naturally regenerating sites, this only allows one to three years of growth response following treatment.

Considering the objective to reduce herbicide use on the Smooth Rock Falls Forest, the audit team believes that the pre-tending assessment could be more comprehensive and should be documented and transparent.

Suggestion 15: Tembec should review and revise the pre-tending survey protocol and document it to ensure that it is explicable and effective.

As a result of the 2000 IFA and action plan, Tembec greatly exceeded the planned amount of FTG surveying during the term (7,600 hectares planned versus 49,689 hectares completed). The field audit of these areas confirmed the FTG status and in many cases it appeared that height and stocking estimates made by Tembec staff were conservative. However, the audit team noted the following shortcomings with the program:

- MNR was not involved with the surveys and did not verify the results;

- Several stands had minimal stocking (e.g. Block D);
- Residual trees were not described when a two-tiered stand was apparent;
- Poplar and fir were sometimes underestimated;
- Aerial assessments were completed on complex stands where ground surveys would be more appropriate (Silvicultural Treatment Assessment and Reporting System¹⁷ and the Well Spaced Free Growing regeneration assessment procedure¹⁸);
- Some assessments were completed too soon following depletion (i.e. earlier than the standards set in the SGRs);
- A significant proportion (approximately 50%) of field records viewed by the auditors indicated that stands were Not Satisfactorily Regenerated (NSR). Many of these stands were re-assessed aerially (sometimes in the next year with no further treatment) and were declared FTG with much higher stocking and very different species compositions than determined by the ground survey.
- Some survey results differ with FTG results in the GIS.

Considering the shortcomings listed above and the magnitude of the FTG program completed during the audit term, lack of MNR involvement is of particular concern to the audit team. Local MNR experience and insight should have been incorporated to ensure acceptability of FTG survey results. As a result of this finding the audit team developed the following recommendations.

Recommendation 17: The Ministry of Natural Resources must review the Free-to-Grow results submitted during the term of the audit.

Recommendation 18: The Ministry of Natural Resources must develop and implement a silviculture effectiveness monitoring program for the Smooth Rock Falls Forest.

¹⁷ MNR. 2005. Silvicultural Treatment Assessment and Reporting System (STARS) Background and Field Procedure Manual (Draft). 34 pp. + Appendices.

¹⁸ MNR. 2005. Well-spaced Free-growing Regeneration Assessment Procedure for Ontario. NWSI Technical Report TR-000. 33 pp. + Appendices.

The average stocking of areas declared FTG during the term of the audit appears less than forecasted in extensive curves for some forest units in the 2000-2005 FMP. It was noted that stocking of some extensive curves was reduced in the 2005-2010 FMP and has better correlation to survey results. However, the minimally stocked stands viewed are a concern to the audit team, particularly those near all-weather access and mills (Figure 25). The audit team believes that the total area of minimally stocked stands is primarily on upland sites and is not large (i.e. the majority of the forest is lowland black spruce sites), however, a suggestion is needed.

Suggestion 16: Tembec should review the condition of minimally stocked stands and consider silviculture interventions to increase stocking levels.

Forestry Futures funding may be available for Class Z lands that are minimally stocked.

Operations inspected in the field were generally found to have been implemented in accordance with the requirements of the FMP, the AWS and guidelines. In certain cases the auditors noted that guidelines were exceeded in the field by Tembec such as the early implementation of the 25 snag tree requirement from the Forest Management Guide for Natural Disturbance Pattern Emulation¹⁹ (NDPEG) in the 2000-2005 FMP.

Monitoring of forest sustainability under the 1996 FMPM is scheduled to occur when a plan is completed and the RPFO compiled. The RPFO would look at a suite of 14 indicators, compare the before and after plan levels (and levels recorded in previous plans) and make a determination as to whether the indicators were moving in a positive or negative direction with respect to plan objectives and forest sustainability.

The 2000-2005 FMP was the first prepared by Tembec under the 1996 FMPM. The RPFO following the completion of this plan would have established baseline levels for eight of the 14 indicators that would be used in the future for forest sustainability assessment. Six indicators

¹⁹ MNR. 2001. Forest Management Guide for Natural Disturbance Pattern Emulation. Queen's Printer for Ontario. 24 pp. + Appendices.



Figure 25. Minimally stocked stand that would benefit from a fill-in plant on Red Pine Road (Block A).

used in the development of the 2000-2005 FMP would have baseline levels already recorded and would be assessed for change.

The 2004 FMPM has replaced RPFOs with Year Three, Year Seven and Year Ten annual reports. Plans created under the 1996 FMPM are to produce a Year Ten annual report in 2004-2005 instead of an annual report to the extent that it is practical and reasonable. The Year Ten annual report for the 2000-2005 Smooth Rock Falls FMP was not due until early winter of 2005 and was not available for inspection by the audit team. The audit team is concerned about changes in the forest sustainability indicators proposed in the new FMPM (2004). The backbone of forest sustainability is the long-term monitoring of the same indicators for change. Changing indicators prevents credible assessment of whether a forest is being managed in a sustainable manner. Meaningful forest sustainability assessment is further complicated by changes in forest units (used to describe the forest) and changes in the forest land base (e.g. new parks and conservation reserves).

Suggestion 17: Corporate Ministry of Natural Resources must provide a consistent methodology and more consistent suite of indicators to assess forest sustainability.

Suggestion 18: Tembec should refrain from changing forest units from plan to plan to allow for credible assessments of whether the Smooth Rock Falls Forest is being managed sustainably.

Compliance

Industry and MNR have joint responsibility for ensuring that forest management activities are conducted in the manner in which they are planned and that there are no adverse environmental or socio-economic impacts as the result of these activities. The SFL holder is responsible for monitoring all forest management activities on their license area. The Ministry of Natural Resources is responsible for monitoring these activities and following up on non-compliance incidents reported by the SFL compliance inspectors.

Compliance activities for both MNR and Tembec were directed by separate strategic five-year plans and implemented through Annual Compliance Operations Plans (ACOPs). Annual Compliance Operations Plans developed by both MNR and Tembec should target issues (e.g. wood utilization) for a particular management unit where that issue has been a recurring problem and is likely to continue given the compliance history for operations on that Forest. The key to an effective compliance strategy and implementation plan is assessing where the risk of non-compliance is highest so that limited compliance resources can be applied efficiently to correct them through education, penalties, etc. There was little evidence of this type of risk assessment in the initial years of the audit period but improvement was noted for both MNR and Tembec in the last years of the audit period. MNR for example, had no formal risk assessment methodology in their annual compliance plans until it was initiated in the 2003-2004 ACOP. Similarly, Tembec's ACOP for 2000-2001 provides no specifics with respect to annual compliance priorities other than "sensitive areas" whereas in 2004-2005 the Company identifies "operating within the heavy development zone of stick-nest AOC's" and "spring harvest areas where there is potential for site disturbance", amongst others, as areas where compliance monitoring should focus.

Recommendation 19: The Ministry of Natural Resources and Tembec must continue to improve the risk assessment and the system used to ensure that compliance inspections are focused on forest management activities and/or operations that are most prone to non-compliance problems.

Neither MNR nor Tembec consistently met required reporting timelines for submission of FOIP reports (FOIP Procedure ENF 22.02.02). Now that Forest Operations Inspection Reports (FOIRs) are exchanged electronically between industry and MNR, this situation should improve.

Recommendation 20: The Ministry of Natural Resources and Tembec must meet reporting timelines for the submission of Forest Operations Inspection Reports under the Forest Operations Information Program.

3.6.2 Annual Report

The Spring (due April 15) and Fall (due November 15) components of the ARs for 2000-2004 were examined. No Spring report was required for 2004-2005 as the Fall report was to incorporate the reporting requirements in the new Year Ten reporting format put forward by the FMPM (2004). Since not all requirements for the Year Ten annual report could be met, only those requirements that are "reasonably possible" would be expected. The Fall 2005 report was not available for inspection by the audit team because it was not required to be submitted within the audit time-frame.

The 2001-02 Spring report was submitted on time but received late by MNR due to a labour dispute within the Provincial government. The other reports were submitted within days of their due date.

The ARs needed improvement in some areas. They did not, for instance, provide a required status report on progress towards implementation of the action plan for the 2000 IFA. In addition, the MNR authored report on negotiations with Aboriginal communities, required under Term and Condition 77 of the Timber Class EA Approval²⁰ (now Condition 34 of MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario²¹) that was to be included with each Fall's AR, was only found for the 2002-2003 report. A recommendation in the 2000 IFA dealt with the absence of these reports in the 1998-2000 ARs for the 1995-2000 FMP. The status report for that recommendation stated that the District had completed the reports but were trying to determine the appropriate method of making the report available while still adhering to the Freedom of Information and Protection of Privacy Act²². The MNR completed the required reports for all five years. These were on file at the District office. For the first two years of the audit period the reports were not included in the AR because the MNR failed to provide them to

²⁰ MNR. 1994. Decision of the Environmental Assessment Board on the OMNR Timber Class Environmental Assessment for Timber Management on Crown Lands in Ontario – "Timber Class EA Approval". 468 pp. + Appendices.

²¹ MNR. 2003. Declaration Order regarding MNR's Class Environmental Approval for Forest Management on Crown Lands in Ontario. 48 pp.

²² Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. F. 31.

Tembec. The Condition 34 report is no longer required by the 2004 FMPM to be part of the Annual Report. The Condition 34 Cochrane District Report located in the Forest Information Portal is available to an identified audience. The District level information is placed into the public Provincial Annual Report. The audit team is satisfied that the missing data is now to be submitted with the ARs and included in the Provincial Annual Report and no recommendation is required.

An examination of the compliance monitoring Tables AR-12.1 and AR-12.2 indicated a high level of compliance noted both by Tembec and MNR inspectors (Table 4). Eighty six percent of the non-compliance incidents reported by MNR and 100% of those reported by Tembec were categorized as minor in nature. The audit team believes that these levels of compliance are higher than they should be based on field observations. See Section 3.4.2 and Recommendation 13 and Recommendation 14.

Aside from the exceptions noted, ARs were found to be complete and accurate.

3.6.3 Report of Past Forest Operations

The Report of Past Forest Operations (RPFO) summarizes the activities conducted during the five-year term of an FMP. It provides an evaluation of forest management activities with conclusions and recommendations for use during development of the next FMP.

1990-1995 RPFO

The 1990-1995 Smooth Rock Falls Forest RPFO included the required summary and evaluation of operations for the five-year management term.

The variance between the planned operation and the actual achievement was significant in a number of areas. During the 1990-1995 period, only 59% of the forecast volume was actually harvested (Table 7 in Section 3.7.2). The RPFO cites mill modernization activities and market conditions as the main reasons for not achieving the targeted production.

Reasoning for shortfalls in renewal and road construction targets were provided, as was a discussion of utilization issues on the Forest. However, the discussion and interpretation of future or past trends was minimal.

The RPFO contained the complete list of amendments for the period. Nine amendments were administrative and three were minor. Both the frequency and rationale were reasonable.

The discussion of the achievement of the FMP management objectives and the explanation for deviations was well done and the conclusions and recommendations were satisfactory.

The RPFO is one source of background information for the preparation of an FMP. Review of the 2000-2005 FMP indicated that no issues specifically originating from the RPFO were included in the plan.

The RPFO was reviewed for identified issues resulting from plan implementation during the period. It included comments on the changing land base as a result of Ontario's Living Legacy, potential impacts of future sustainable harvest volumes due to the constraints of a reduced land base, problems associated with an old FRI, impact of limited natural depletions (fire and insect), and overachieving harvest volumes compared to the

Table 4. Summary of Forest Operation Inspections for the Smooth Rock Falls Forest (2000-2004*).

	Tembec Inspections	MNR Inspections*	Tembec % of FOIRS In-Compliance	MNR % of FOIRS In-Compliance
Access	113	28	98	100
Harvest	71	27	90	74
Renewal	30	5	100	100
Maintenance	21	0	95	n/a
Protection	0	0	n/a	n/a
Total	235	60	-	-

* Seven MNR non-compliances including six minor and one moderate.

Source: Annual Report Tables AR-12.1 and AR-12.2 up to 2003-2004.

planned harvest area. These comments were not specifically noted as being inappropriate assumptions to the strategic planning in the TMP; rather, they are areas that now either have or need better information available. Many of these management alternative assumptions have already been reviewed by the Company and revised where appropriate in either the 2000-2005 FMP or the 2005-2010 FMP (natural depletions, land base, yield curves, post-renewal forest treatments and succession). Further review indicated that assumptions made through the analysis of implementation of the chosen management strategy in the RPFO (previous TMPs) were appropriate at the time.

1995-2000 RPFO

The 1995-2000 Smooth Rock Falls Forest RPFO met the phase-in requirements of the 1996 FMPM and included the required summary and evaluation of operations for the five-year term. The 1995-2000 RPFO indicates that timber yield met the forecasted level while only 82% of the planned area was harvested. This phenomenon is discussed in some detail in the RPFO and is attributed to the particular allocations harvested during the period being on some of the more productive areas not typical of the majority of the forest. There are no real conclusions drawn regarding the forecast of timber yield and wood supply for the 2000 and future FMPs.

Table RPFO-7 identified significant differences between planned and actual levels of renewal. The RPFO pointed out that the differences are related to reduced area harvested and incomplete data. This situation is discussed further in the review of the TAR in Section 3.7.3 and the audit team concludes that renewal is in balance with harvest.

The RPFO contained a complete list of 14 administrative amendments for the period and provided a reasonable description of each.

The discussion of the achievement of the FMP management objectives and the explanation for deviations was complete. The RPFO uses a summary of the results of the 2000 IFA to present the conclusions and recommendations of the RPFO. Although the audit team believes no recommendation or suggestion is warranted and believes that the summary of the 2000 IFA provides insight into some of the issues on the

Forest, the conclusion and recommendation section would have benefited from more detail from the authors own perspective for this period on the Forest.

3.7 Achievement of Management Objectives and Forest Sustainability

3.7.1 Achievement of Management Objectives

Management objectives are developed in all FMPs for all Crown forests and, as such, must be consistent with the primary goal of forest management on Crown lands, which is to achieve a healthy, sustainable forest ecosystem, and derive the associated environmental, social and economic benefits. At the individual forest level, management objectives are the desired outcomes of forest management planning achieved through the management of forest cover. The assessment of the achievement of management objectives is, therefore, a critical part of the review of the success of forest management. It also plays an important role in the process of adaptive forest management by allowing adjustments in objectives, targets and strategies over time to reflect successes, failures and the inclusion of new information and approaches to forest management.

1995-2000 FMP Objectives

The audit team reviewed the assessment of achievement of management objectives and examined the rationale for any differences between planned and actual results in the RPFO. A list of the objectives and audit team assessment of the achievement of each objective for the 1995-2000 FMP is provided in Table 5. The comments column provides some of the background to the audit team's decision.

As can be clearly seen in Table 5, the management objective associated with renewal was not achieved in the 1995-2000 period. This was also pointed out in the 2000 IFA. The RPFO does not provide adequate rationale for not meeting all the renewal targets and strategies. Given the significant shortfall in meeting the renewal objective "to implement a silviculture program to maintain or enhance forest productivity such that harvest targets may be

Table 5. Summary of the Status of the 1995-2000 Smooth Rock Falls Forest FMP Management Objectives (see FMP for full version).

Objective/Target	Achieved Yes/No/Partial	Comments
Harvest		
Achieve sustained yield management with a harvest target of 300,000 m ³ of conifer annually and 40,000 m ³ of hardwood annually.	Yes	The actual annual conifer volume level was 303,744 m ³ and actual annual hardwood volume was 39,800 m ³ and achieved by harvesting only 82% of the area allocations. The primary reason given was that stands harvested in this period were mainly from the southern portion of the Forest, where the more productive stands are present, providing higher volumes than predicted.
Survey areas needing to be assessed to determine renewal status (B&S and Not Satisfactorily Regenerated areas).	No	Only 25% of the forecasted regeneration surveys were completed. However, as a result of the 2000 IFA recommendations, approximately 50,000 hectares were surveyed in the 2000-2005 period of which 82.5% (41,411 hectares) has been declared FTG and placed back into the forest inventory. The RPFO summarizes the activities conducted during the five-year term of an FMP. It provides an evaluation of forest management activities with conclusions and recommendations for use during development of the next FMP.
Renewal		
Implement a silviculture program with the following targets; 1. Regenerate 70% of area harvested through CLAAG and artificially regenerate 900 hectares/year.	No	It appears that of the 16,230 hectares harvested during the 1995-2000 term, 58% was regenerated through natural means even though the full amount was not recorded and is likely much higher than this. Approximately 500 hectares/year were regenerated artificially, which represents 54% of the target. Part of the shortfall can be attributed to the underachievement of the harvest area targets (only harvested 81% of planned area). The TAR states that the reasons the artificial renewal targets were not met were: roads built to a low standard; and poor access to winter harvest blocks. The RPFO states that underachievement of the artificial program "is not felt to be an unbalanced approach to regenerating the forest".
2. Identify and reclassify backlog areas.	No	B&S, including backlog, increased by 13,500 hectares between the 1995-2000 and 2000-2005 terms. However, a large portion of the 50,000 hectares surveyed in the 2000-2005 period was declared FTG; this reduced the backlog considerably.
Monitor success of CLAAG procedure.	No	Specific monitoring for CLAAG did not occur during the 1995-2000 term. As a result of the 2000 IFA recommendation, CLAAG surveys have been conducted and some silviculture treatments have been adjusted accordingly.

Table 5 continued.

Environmental Protection		
Use AOC prescriptions together with the Biological Diversity Strategy to prevent or limit detrimental effect on the environment.	Yes	A Draft Regional Statement on Interim Direction for Biodiversity ²³ was developed by the MNR. Landscape pattern, available habitat and specific significant areas were considered using a decision key while developing the allocations up to 2005. Thereafter the NDPEG, SFMM outputs and trap line maps provided direction in the implementation on the protection of other values. AOC prescriptions were written for specific environmental values (i.e. MAFAs, known fisheries values).
Integrated Resource Management Objective		
Minimize and mitigate conflicts between timber operations and other users.	Yes	The Approved Cochrane District Remote Tourism (Wilderness) Strategy in 1997 provided direction on how primary and secondary roads and protected lakes interrelate within the northern portion of the Smooth Rock Falls Forest. The Cochrane District Land Use Guideline ²⁴ provided strategies and defined the different land uses within the Forest. The Approved Cochrane District Remote Tourism (Wilderness) Strategy will become a key strategy in the current 2005 –2010 period in addressing access to the northeast corner of the Forest.
Biological Diversity		
The target was to have at least 15% of the Forest as large (over mature) conifer blocks (large>4 hectares).	Yes	In 2000, about 92,000 hectares (27%) of the 337, 615 hectares of production forest was core conifer mature forest.

Note: Secondary objectives are paraphrased in the interest of space.

²³ Duckworth, George and Mark Fleming. 1993. Interim Strategy for Biodiversity Consideration in Timber Management Planning. Strategic Planning Statement No. 1. Timmins: Ontario Ministry of Natural Resources, Northeast Region.

²⁴ MNR Cochrane District. 1983. Cochrane District Land Use Guideline.

achieved on a sustained basis" and the emphasis and direction given to the shortfall in the 2000 IFA, the audit team believes that more explanation is warranted. For example, no explanation is given to the strategy "to consider alternatives to chemical aerial tending that still protect the productivity of the forest". The audit team agrees that the majority of the renewal shortfalls have been addressed in the 2000-2005 period but the FMPM (Part C, Section 4.4) requires a summary statement of silvicultural effectiveness by forest unit, working group and silvicultural treatment package for each silvicultural objective. This is important given that an explanation as to how the silviculture program is maintaining a consistent harvest target is not clear. Therefore a recommendation is warranted.

Recommendation 21: Tembec must complete all the information required in the Report of Past Forest Operations/Year Ten tables to be included in the Year Ten Annual Report.

2000-2005 FMP Objectives

Table 6 provides a list of the objectives for the 2000-2005 FMP, which is the subject of the audit. The audit team has provided a review of the progress towards meeting the objectives by indicating whether the targets and strategies were met, not met or partially achieved. Associated recommendations and suggestions are identified where applicable.

The audit team noted the partial achievement under Multiple Benefits to Society. Neither the target for spruce, pine and fir nor the target for Oriented Strand Board (OSB) aspen was achieved and only 41% of the planned area was harvested. Looking ahead, the Selected Management Alternative for the 2005-2010 FMP has forecasted a harvest level that is reduced by volume and area versus the 2000-2005 FMP. **The harvest level is projected to further decrease to about 188,000 m³/year in 2035 and then slowly increase** (based on an interview with the Tembec Forest Modelling Analyst and reference to a SFMM table with average annual volumes harvested in each ten-year period by species group). The reduction in volume and area can be partially attributed to marten core deferrals and old growth targets but the audit team noted that the age-class imbalances on the Forest were a

major contributing factor to the reduced harvest level. Approximately 38% of the black spruce 1 forest unit is in the 121+ age class and 46% of the black spruce 3 forest unit is in the 121+ age class. These two forest units make up 66% of the productive forest land base. Figure 26 depicts the age class distribution on the Forest. As this existing "old forest" is harvested, yields and volumes will decrease. It will take 30 to 40 years before the "new forest" is available for harvest and the yield can be expected to increase as the younger, more vigorous stands become available for harvest. The Selected Management Alternative was the most stable for the wood supply model, even though it did not meet the spruce, pine and fir targets (2005-2010 FMP). The audit team believes it is important to point out that when a forest is being managed on a sustainable basis it does not necessarily mean the harvest level will be constant. Tembec has completed analyses that indicate that increased silvicultural expenditures in the near terms will not improve the level of harvest during the years of decline - an increased level of harvest (relative to the selected management alternative) is predicted after approximately 40 years when harvest levels are already rebounding. Therefore, the primary factors limiting the harvest level are meeting the requirements of the forest management guidelines and the current age-class distribution. The decreasing level of harvest on the Forest is discussed further in Section 3.7.3 and Section 3.7.4.

The 1996 FMPM came into effect during the term of the 1995-2000 TMPs and many of the new requirements (such as the criteria and measurable indicators of sustainability) were not considered during the preparation of the plans. Base line levels were established and used in the 2000-2005 FMP for six indicators used in plan formulation but baseline information for eight others will only be established with the completion of the Year Ten annual report that will replace the RPFO for 2000-2005 FMPs under the 2004 FMPM. Many of these indicators will not continue to be monitored as they have been dropped or replaced in the 2004 FMPM. The Year Ten assessment had not been prepared at the time of the audit but the audit team is doubtful whether any conclusions can be drawn from this report about the sustainability of the Smooth Rock Falls Forest since no trend information is available for the indicators of forest sustainability. The

Table 6. Summary of the Status of the 2000-2005 Smooth Rock Falls FMP Management Objectives (see FMP for full version).

Objective	Target(s) and Strategies	Achieved Yes/No/Partial	Comments	Recommendation/ Suggestion
Conservation of Biological Diversity				
1. Ensure the current biological diversity is not significantly changed.	1a. Maintain all forest units	Yes	1a. Ten forest units were defined and maintained for the 2000-2005 audit term.	Suggestion 4
	1b. Maintain 10 to 15% in or above mature age classes and a minimum of 1% on over-mature age classes.	Yes	1b. Age class distributions analyzed by forest type. All forest types exceeded minimum targets for mature and over mature classes during audit term.	-
2. Maintain habitat for selected indicator species.	2. Maintain habitat for the 19 indicator species within 20% of the natural range.	Yes/Partial	2. Yes in audit term. Partial in long-term. Five of 19 selected wildlife species project habitat that falls temporarily below the acceptable levels. Acceptable habitat increases thereafter for all but pileated woodpecker and black bear.	Recommendation 4 and Recommendation 6
3. Maintain marten habitat at an acceptable level.	3a. Maintain a minimum of 75% of marten habitat in suitable condition in core areas between 30 and 50 km ² in 10 to 20% of the forest.	Partial	3a. Ten well-distributed marten core areas were established within the Forest representing 15.9% of the capable land base that was suitable. Three of the core areas however did not meet the 75% suitability by age (>80 yrs) criterion.	-
	3b. Retain at least six dead or declining trees/hectare with at least two greater than 30 cm in diameter at breast height.	Yes	3b. Satisfactory.	-
4. Conserve the genetic diversity of trees on the forest.	4. Maintain a supply of black and white spruce and jack pine seed.	Partial	4. Sufficient black and white spruce seed on hand but insufficient jack pine seed was available to meet all the needs.	Recommendation 9

Table 6 continued.

Maintenance and Enhancement of Forest Ecosystem Condition and Productivity				
1. Forest practices to emulate natural disturbance patterns and landscape patterns.	1. Provide a range of disturbance patch sizes to move toward a more natural forest condition.	Partial	1. Some disturbance size classes are moving towards the template, while others are not during the 2000-2005 term.	Suggestion 5
2. Keep forest ecosystems productive.	2. Move towards maintaining a maximum of 15 years of disturbance in unproductive forest (Not Satisfactorily Regenerated).	Yes	2. The area classified as unproductive forest at March 31, 2005 was 26,713 hectares. The total area disturbed since 1990, not including the harvest for 2004-2005 was 36,562 hectares. Therefore unproductive was less than the area disturbed over the past 15 years.	Recommendation 9, Recommendation 12, Recommendation 15 and Recommendation 22; Suggestion 5 and Suggestion 16.
Conservation of Soil and Water Resources				
1. Minimize adverse effects on water and soil.	1. Continually improve by applying appropriate guidelines and SGRs, plan winter operations where suitable, protect water quality through AOC prescriptions and apply the <u>Riparian Code of Practices</u> ²⁵ and monitor through onsite inspections.	Yes	1. Site disturbance is minimized on the Forest through the following means: • Majority of harvest operations occur during winter months. • CLAAG harvest pattern applied on all sites. Compliance monitoring reflected satisfactory practices with regard to effects on soil and water.	Recommendation 13, Recommendation 14, Recommendation 16 and Recommendation 19; Suggestion 14.
Forest Ecosystems Contributions to Global Ecological Cycles				
1. Ensure forest use is balanced between utilization and rejuvenation.	1. Maximize the total Crown productive forest by utilizing SFMM, regenerating and following the Physical Environmental Guidelines ²⁶ .	Yes	1. Maximization of productive forest land base considered during selection of management alternative for implementation.	Recommendation 9, Recommendation 16 and Recommendation 22; Suggestion 10, Suggestion 12 and Suggestion 16.

²⁵ MNR. 1998. Code of Practice for Timber Management Operations in Riparian Areas. OMNR Forest Management Branch.

²⁶ MNR. 1997. Forest Management Guidelines for the Protection of the Physical Environment. 39 pp. + Appendices.

Table 6 continued.

Multiple Benefits to Society				
1. Supply industrial and consumer wood needs through a predictable, continuous and consistent wood flow.	1a. Provide 300,000 m ³ /year of spruce, pine and fir.	Partial	1a. Average estimated to be 239,000 m ³ /year of spruce, pine and fir.	
	1b. Provide 20,000 m ³ /year of poplar.	Partial	1b. Provided 14,005 m ³ /year of poplar.	Suggestion 20.
	1c. Provide 1200 m ³ /year of poplar veneer.	Yes	1c. Provided 1208 m ³ /year of poplar veneer.	
	1d. Maximize available harvest area.	No	1d. Only ~7,075 hectares harvested versus a planned harvest area of 17,330 hectares.	Suggestion 12 and Suggestion 13.
2. Provide a range of quality resource-based tourism opportunities.	2. Continually improve through applying the Timber Management Guidelines for the Protection of Tourism Values and respecting the approved 1997 <u>Cochrane District (Wilderness) Tourism Strategy</u> .	Yes	2. The Forest provides tourism-based opportunities including the traditional fishing, hunting and canoeing for the public as well as organizations such as the Arctic Riders, a snowmobile club based in Smooth Rock Falls. Respecting the 1997 <u>Cochrane District (Wilderness) Tourism Strategy</u> will be more difficult as the northeast corner of the Forest is accessed.	Recommendation 1 and Suggestion 1.
3. Ensure the protection of other values.	3a. Continually improve through consultation with other users, encourage assessment of fish and wildlife values, incorporate new values, use SEIM, and only use herbicides where necessary.	Partial	3a. Discussions with outfitters needed to minimize localized area conflicts. Clean-up of residual wood needed in some areas. The Forest was registered to the FSC in 2005 providing additional recognition and protection of other values.	Recommendation 5, Recommendation 6 and Recommendation 7.
	3b. Reduce the amount of area treated with herbicides.	Yes	3b. TAR indicated that area treated with herbicide fluctuated through plan terms: 1990-1995 = 3,968 hectares, 1995-2000 = 5,676 hectares and 2000-2005 = 3,964 hectares. Although actual treatment decreased between the 1995-2000 and 2000-2005 terms, there was more planned in the 2000-2005 term than in the prior term (4,710 hectares versus 4,221 hectares). Fluctuations in actual depletion area largely influence the amount of herbicide treatment.	Recommendation 17 and Recommendation 18.

Table 6 continued.

Multiple Benefits to Society (continued)				
4. Establish and maintain representative, protected forestlands.	4a. Develop a strategy to protect First Nation values.	Yes	4a. Tembec has a corporate First Nations Policy in place.	Best Practice 1
	4b. Continually improve through respecting the OLL, recognize sites of cultural values and work with First Nations to identify and protect native values.	Yes	4b. Taykwa Tagamou Nation participated in identifying native values and recommending prescriptions and consensus was reached in May 2000.	Best Practice 1
Accepting society's Responsibility for Sustainable Development				
1. Recognize First Nation ecosystem needs.	1a. Develop a long-term forestry agreement with Taykwa Tagamou Nation and other First Nations.	Partial	1a. Taykwa Tagamou Nation and Tembec are signatories to a long-term forestry agreement.	Recommendation 2
	1b. Continually improve through enhanced native consultation with Taykwa Tagamou Nation and Moose Cree First Nation, present AWSs to Taykwa Tagamou Nation, provide economic opportunities, provide training opportunities and understand First Nation traditional use area.	Yes	1b. Tembec has a staff position reporting to senior management responsible for communication and consultation with First Nations. Tembec and MNR received a Best Practice for their exemplary efforts in establishing a relationship with a First Nation and providing opportunities to realize economic benefits from the Forest for First Nations..	Best Practice 1
2. Utilize adaptive ecosystem management.	2. Continually improve through the establishment of a growth and yield program, maintain the CLAAG study, establish a pre-harvest survey program, and develop a Forest Ecosystem Class database.	Yes	2. Tembec, together with the MNR, the Canadian Forestry Service and the Canadian Ecology Centre have formed a Forest Research Partnership (FRP). The mission of FRP is to identify, develop and implement leading edge forestry practices which will sustain the Tembec mills and communities those mills support over the long term. The database has been updated to the Forest Ecosystem Classification system and pre-harvest and CLAAG surveys are completed annually.	Recommendation 15 and Recommendation 16; Suggestion 10, Suggestion 11, Suggestion 15 and Suggestion 18.

Table 6 continued.

Accepting society's Responsibility for Sustainable Development (continued)				
3. Utilize consensus-building methods in considering forest users and values.	3. Maintain participation of the Local Citizens Committee in management planning decisions.	Partial	3. The LCC is active on the Forest reviewing forest uses and values through consultation and training. However, the administrative workload assigned to the LCC in dealing with four forests limits the time available for meaningful participation in planning decisions.	Recommendation 1 and Recommendation 3; Suggestion 1.
4. Ensure best available science and appropriate inventories are used.	4. Continually improve through following scientific protocol and identifying needs, maintain and improve the FRI and cooperate in improving the database of other values.	Yes	4. Tembec has embarked on a pilot inventory project for the Romeo Malette Forest which, if successful, will be employed on all the Tembec SFLs. The inventory will provide accurate estimates of volume by species by various size categories at the cut block level thereby providing planning and operations staff with tools to develop efficiencies and opportunities for reducing the cost of planning, harvesting and delivery to the mill.	Recommendation 4, Recommendation 5 and Recommendation 6.
5. Educate the public on forest ecosystems, objectives and management tools.	5. Establish an employee education program, make presentations to grade five students in Smooth Rock Falls, Cochrane and Timmins and present an annual update on forest management practices for employees.	Partial	5. Grade five school presentations done in 2001, 2002 and 2003. Annual update provided to staff. In August 2005, two Canadian Teachers Tours were carried out through the support of the Forest Research Partnership to promote learning within our education system. Tembec held an Aerial Spray Open House in Timmins and Cochrane in 2005. A booth was held at the Rotary Trade Show in Timmins in 2004 and 2005.	Suggestion 10, Suggestion 11 and Suggestion 14.

Note: Secondary objectives are paraphrased in the interest of space.

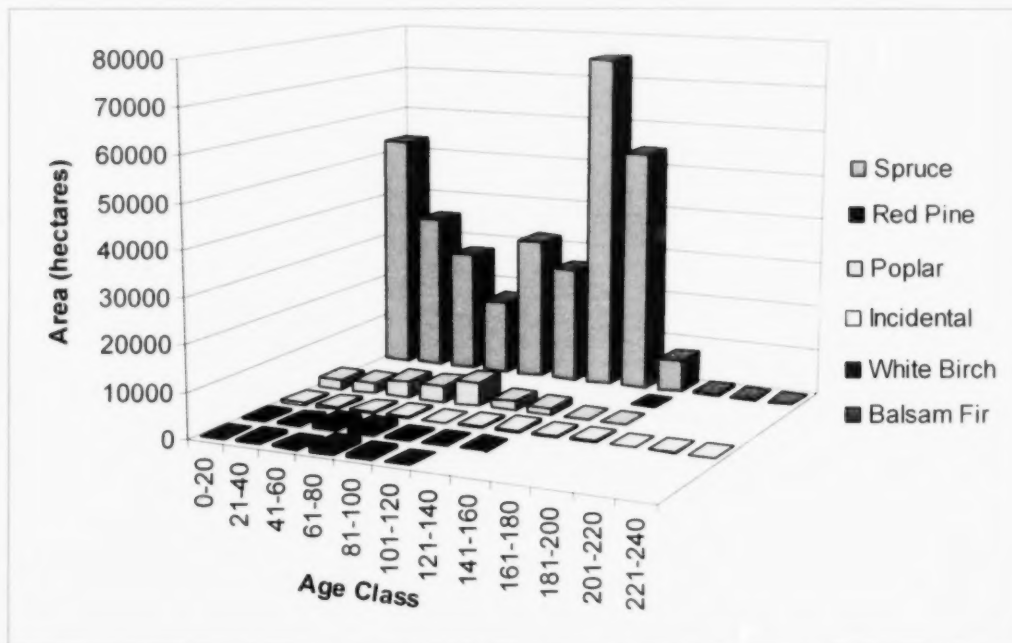


Figure 26. Age-class distribution by working group of the productive forest on Crown Managed lands. (Source: Table FMP-2, 2000-2005 FMP.)

audit team's concerns for the lack of a standard set of indicators and methodology for forest sustainability assessment has been addressed by Suggestion 17 and Suggestion 18.

The 2000-2005 objectives were either met or partially completed as indicated in Table 6. The Company has identified a decreasing level of harvest, which is reflected in the failure to completely meet all the objectives under Multiple Benefits to Society. The failure to maximize the available harvest area (the only target not significantly achieved) was in part due to market conditions beyond the control of the Company. The audit team believes the management objectives have been fulfilled with the exceptions as noted in Table 6.

3.7.2 Review of RPFO Assessment of Sustainability

An RPFO is to be produced after an FMP has been implemented. The audit team examined the 1995-2000 RPFO, which summarized the actual operations that were carried out during that plan period. The 1995-2000 RPFO was also to contain an Assessment of Forest Sustainability that was to be written in accordance with the requirements of the FMPM that applied at the time of the plan production (Phase-in requirements from Appendix VIII of the 1996 FMPM).

The information presented in the 1995-2000 FMP and hence the RPFO did address two of the six criteria of forest sustainability (i.e. Multiple Benefits to Society with the "percent of available harvest area actually utilized" and Biodiversity with "the frequency distribution of clear-cut and wildfire sizes").

The audit team notes that some of the indicators available for comparison were available but not discussed in the RPFO Assessment of Forest Sustainability including the total productive Crown forest by working group, managed Crown forest area available for timber production, the value added, and the percent of First Nation communities in or adjacent to the Forest involved in the FMNCP option. The FMPM states that Table RPFO-14 (Summary Report of Managed Crown Forest Area Available for Timber Production) is to be completed by the planning team. This was not done and no reason was given for not mentioning the requirement. The review of these indicators is an important component of determining whether the Forest is on a sustainable course as they provide the baseline data for the forest sustainability criteria. As per "Phase-In Provisions" of the 2004 FMPM additional tables required for the Year Ten annual report will be RPFO-13, RPFO-14, RPFO-15, RPFO-16, RPFO-17 and RPFO-18 from the 1996 FMPM rather than

Annual Report tables. Therefore the information in these tables must be completed.

Similarly, the Assessment of Forest Sustainability in the RPFO also was to contain a detailed description of forest condition. A description of the forest condition is required as a baseline for planning. Forest sustainability is tracked by recording the actual forest condition at the end of the five-year term of an FMP in the RPFO and analyzed trends.

The working group and age class structure of the forest are key components of the forest condition. The RPFO contained a series of tables (RPFO-13 through to RPFO-18) which detailed the parameters required to report and track forest condition. Table RPFO-18 was completed but only partially and the other tables were left blank. In 2000, a change from working group to forest unit occurred which made comparison difficult; however, given the preponderance of lowland black spruce on the Forest, the audit team believes that some text addressing forest condition and structure was warranted in the RPFO. The TAR recognizes this in the concluding statement, "the large area represented in forest units whose classification and area has essentially remained unchanged, namely lowland black spruce, provides confidence that there have been no major shifts in forest composition over the term of the analysis." Recommendation 21 has been developed to address this issue.

The RPFO assessment of sustainability concluded by stating that in the 1995-2000 period, the fibre demands of the Forest were met with 4.8% additional volume than planned being harvested on 81% of the planned harvest area (see Table 7). It was also stated that based on the developing 2000-2005 FMP, the distribution of disturbance sizes follows the same direction with moderate movement towards larger disturbances. The audit team noted that Table RPFO-19 indicated that 88% of the area harvested in the 1995-2000 period was in harvest blocks exceeding 260 hectares, closely emulating the historic wildfire patterns on the Forest.

The Comparison and Trend Analysis of Planned versus Actual Forest Operations Report (TAR) (Appendix A) provides an overall summary which indicated that for the 1995-2000 period, the lower area harvested resulted from deferrals of area because of First Nation issues and higher than

expected volumes per unit area harvested. This agrees with the data shown to the audit team and provided in the RPFO. The 1995-2000 RPFO includes the following points in a discussion of achievement of silviculture objectives:

- Not clear that the renewal targets have been achieved because FTG surveys are premature.
- The planting program was not achieved. Discussion of this under-achievement in the RPFO is as follows: "while there is an underachievement of artificial regeneration when compared to the target this is not felt to be an unbalanced approach to regenerating the forest". The audit team does not feel that this is an adequate explanation for underachievement of an important forest management target. Recommendation 21 has been developed to address this.
- Assessment of backlog area target was not met. The importance of this short fall is recognized in the RPFO. As discussed in Section 3.6.1 of this report, a significant amount of area was surveyed (including backlog) by Tembec in the 2000-2005 term.

Although not stated in the RPFO, no CLAAG surveys were conducted during the 1995-2000 term. As a result of recommendations in the 2000 IFA report, pre- and post-harvest CLAAG surveys have been conducted on the Forest since 2002.

The RPFO does not contain a discussion of silviculture effectiveness or assessments of silviculture exceptions. In addition, the RPFO has not considered past terms (i.e. 1990-1995 RPFO) to assess silvicultural trends as is required in the 1996 FMPM (Appendix-VIII). Recommendation 21 addresses this issue.

A limited discussion regarding current forest condition versus that at plan start and desired condition was available in the 1995-2000 RPFO as much of the framework for forming the basis of assessment had not been established when the 1995 TMP was written. As noted previously, the discussion is limited to two of the six indicators of forest sustainability: percent of AHA utilized and frequency distribution of disturbance sizes.

Table 7. Planned versus Actual Forest Management Activities for the Last Three Planning Terms on the Smooth Rock Falls Forest*.

		Planning Term			Total
		1990-1995	1995-2000	2000-2005	
Harvest Area (for 5 years)	Planned (ha)	16,025	20,100	17,330	53,455
	Actual (ha)	10,400	16,230	7,075	33,705
	Percent	65%	81%	41%	63%
Harvest Volume (per year)	Planned (m3)	338,114	332,372	276,913	947,399
	Actual (m3)	198,634	347,303	147,195	693,132
	Percent	59%	104%	53%	73%
Regeneration Area (for 5 years)	Planned (ha)	14,248	20,098	17,323	51,669
	Actual (ha)	4,385	11,941	9,569	25,895
	Percent	31%	59%	55%	50%
Tending Area (for 5 years)	Planned (ha)	4,550	4,221	4,720	13,491
	Actual (ha)	3,968	5,676	3,964	13,608
	Percent	87%	134%	84%	101%
Free-to-Grow Area (for 5 years)	Planned (ha)	52,500	47,356	7,600	107,456
	Actual (ha)	12,034	12,131	49,689	73,854
	Percent	23%	26%	654%	69%
Area in FTG of area surveyed		11,659	4,204	41,411	57,274
FTG as percent of area surveyed		97%	35%	83%	78%

* The 2004-2005 harvest data is based on an average of the previous four years.

The 2004-2005 silvicultural data is an estimate of the work completed.

Source: Data from TAR and RPFOs.

3.7.3 Review of the Comparison and Trend Analysis of Planned versus Actual Forest Operations

The Comparison and Trend Analysis of Planned versus Actual Forest Operations Report (TAR) compares the forest management activities that occurred on the Forest during the audit period 2000-2005 to those planned in the 2000-2005 FMP. The analysis also included a summary of planned versus actual forest management activities, which occurred on the Forest during the two preceding five-year operational periods, 1990-1995 and 1995-2000. The comparison and analysis of these three planning periods permitted the development of a level of understanding of the evolving forest management practices on the Forest. The audit team's review was to include an

appraisal of the TAR to determine whether the report was factually correct, assess reasons for significant differences in forest condition between current and previous plan periods and determine if trends were in line or supportive of the associated objectives in the plan.

Several errors discovered by the audit team in the original TAR tables were due to the use of an incorrect version of data and were corrected by the report author. The auditors believe the TAR attached in Appendix A is now complete and correct.

Land Base

The total forested land base has changed very

little since 1990 (from approximately 488,000 hectares down to 480,000 hectares) with a drop of approximately 8,000 hectares. Similarly the total production forest has decreased from approximately 345,000 hectares down to 337,000 hectares. The decrease is mainly attributed to the update on the FRI in 1992, which provided for a buffer on streams and polygon coding errors. This appears reasonable. The updated inventory reduced the B&S category by approximately 47,000 hectares of which the majority was placed into the spruce working group.

As indicated in the text of the TAR, an increase in the B&S and Depleted categories and a decrease in the spruce working group category between 2000 and 2005 was a result of the difference between the area harvested and area successfully regenerated in the 1995-2000 period not being reflected in the inventory.

Table 7 illustrates the percent of planned versus actual forest management activities achieved on the Forest in the three planning periods. The trends in harvest area and volume, regeneration and tending are similar and consistent over time. The TAR provided an excellent in-depth review of reasons for differences between these planned and actual activities, which the audit report will not duplicate. The audit team believes that Tembec has responded to market, labour and environmental (weather and access) conditions in a reasonable manner without fully compromising the plan objectives.

Harvest Activities

The actual harvest on the Forest during the 2000-2005 period was much lower than planned due to several factors including:

- The shutdown of the Cochrane sawmill for several months in 2000 due to the installation of improvements;
- Start-up challenges resulted in further downtime;
- Poor market conditions led to additional downtime;
- The First Nation harvest contractors were dealing with harvesting capacity and internal community issues and as a result not all the volumes were harvested;
- Limited access constrained some harvest activities.

Although only 41% of the overall planned area was harvested in the 2000-2005 period, demand remained strong for aspen volumes and 89% of the planned aspen forest area was harvested.

The TAR concluded by stating the total (all species) planned volumes declined by 18% from the 1990-1995 TMP to the 2000-2005 FMP. The audit team noted that despite the decrease in planned volume, the planned area increased by 8% during this time period.

A look ahead at Table FMP-15 from the 2005-2010 FMP indicated that a projected harvest area of 17,440 hectares would provide 261,969 m³ per year of total volume, representing a further decline in volume. The projected total area and volume up to the year 2020 is reduced to a projected area of 15,510 hectares which would provide an annual volume of 223,157 m³. **From a planned harvest of 338,114 m³ per year in 1990 to a planned harvest of 223,157 m³ in 2020 represents a decrease of 34% over 30 years.** Based on the information provided, it is readily apparent that the harvest volumes are showing a downward trend and the current level of harvest is not sustainable. This is discussed further in Section 3.7.4 and Section 3.8.

The Smooth Rock Falls Forest is a black spruce dominated forest (Figure 27). The available area in the black spruce forest units has fluctuated from 225,000 hectares in the 1990-1995 period to 250,000 hectares in the 1995-2000 period and to 230,000 hectares in the 2000-2005 period. The TAR indicated that the fluctuation is due to lag time between areas harvested and surveyed. This corresponds to what the audit team observed. The Forest remains dominated by black spruce. The second major tree species is aspen. The managed productive forest area for the aspen forest units was 17,000, 19,000 and 18,000 hectares in the 1990-1995, 1995-2000 and 2000-2005 periods respectively. These two forest units comprise 80% of the total production forest.

Renewal Activities

The TAR indicated that the area projected for natural regeneration in the 2004-2005 AR will bring the natural regeneration for the 2000-2005 period up to approximately 70% of the area harvested, leaving approximately 30% to be regenerated artificially. This reflects what the audit team viewed in the field. The overall 50%



Figure 27. The CLAAG pattern of harvest ensures renewal to black spruce.

achievement of planned renewal over the past 15 years is more a shortfall in actual harvest and lack of natural regeneration reporting rather than a shortfall in actual renewal. As indicated in Section 3.4.3 of the audit report, based on a review of the ARs, RPFO, TAR and field observations, the audit team concluded that renewal is in balance with harvest.

The silviculture expenditures over the 2000-2005 period increased to approximately \$900,000 per year from an average of \$500,000 per year in the 1995-2000 period. The audit team noted that this is a result of more intensive silviculture and an increase in planting on productive sites, not an increase in area. However, the audit team directed a recommendation to Tembec to review the use of a CLAAG harvest pattern on upland sites (see Recommendation 9 in Section 3.3.7). During the field visits, the audit team observed minimal stocking (i.e. 40% to 50%) on these upland sites where CLAAG was employed. These sites usually have all season access, are fairly productive and are located relatively close to the mill facilities. Some of these sites can still benefit from a fill-in plant and Suggestion 16 has been written to address this issue.

Free to Grow Assessments

The large increase in FTG area was a result of the surveys carried out by the Company during the audit period. The data in Table 7 that summarizes the planned versus actual forest management activities, indicates that over the 15-year period from 1990-2005, approximately 33,705 hectares were harvested versus 57,274 hectares declared FTG in the same period. The FTG data reflects the area actually surveyed in a five-year period, which may or may not necessarily be the same area that was harvested in that same period. The larger area declared FTG (57,274 hectares) when compared to the area harvested (33,705 hectares) is explained by the catch-up of FTG surveys done by Tembec in the 2000-2005 plan period. Over one-half of the area declared FTG was in the 21-40 year age-class when entered in the inventory. The audit team notes that Tembec has reached its assessment obligations in the 2000-2005 period. Tembec's use of pre- and post-harvest surveys should enable it to maintain an up-to-date and knowledgeable awareness of the harvest and renewal trends on the Forest.

3.7.4 Achievement of Forest Sustainability

Prior to the implementation of the CFSA, the objective of forest management was to provide timber to the forest industry in a manner consistent with sound environmental practices and to provide for other uses of the forest. With implementation of the CFSA on April 1, 1995, recognition was given to the importance of forest sustainability. It should be kept in mind that the means of achieving forest sustainability under the CFSA is through the management of forest cover. According to the CFSA, forest sustainability is defined as long-term Crown forest health. Two key principals are associated with forest sustainability:

- Large, healthy, diverse and productive Crown forests and their associated ecological processes and biological diversity should be conserved.
- The long-term health and vigour of Crown forests should be provided for by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbances and landscape patterns while minimizing

adverse effects on plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values.

The methods of planning for and assessing the achievement of forest sustainability are described in the FMPM. It begins with an eight-step process that includes gathering background information, setting objectives and developing strategies, identification and analysis of management alternatives, selection of a preferred management alternative, and the identification of specific areas for forest operations. Throughout the process opportunities are available to the public to participate and provide input into the development of the FMP. The assessment of achievement of forest sustainability involves the analysis of trends associated with a set of criteria and indicators of sustainability, given in the FMPM. The 2000-2005 FMP used the six forest sustainability criteria listed in Table 8 below.

The audit team believes the Forest is being managed in a manner that only partially meets

Table 8. Summary of Assessment of Forest Sustainability.

Forest Sustainability Criteria	Met (Yes/No/Partial)	Audit Team Comments
Conservation of Biological Diversity	Partial	All forest units were maintained during the audit term. Long-term maintenance of selected species needs to be reviewed at the ecoregional level. Not all strategies for marten habitat were met.
Maintenance and Enhancement of Forest Ecosystem Condition and Productivity	Partial	Management activities are making progress in moving forest disturbances to a more natural forest condition.
Conservation of Soil and Water Resources	Yes	Compliance monitoring and audit field visits reflected satisfactory practices with regard to management effects on soil and water.
Forest Ecosystem Contributions to Global Ecological Cycles	Yes	Forest regeneration was balanced with harvest.
Multiple Benefits to Society	Partial	The full harvest and wood supply commitments were not met during the audit term. Extensive use of the Forest for tourism based benefits is occurring but localized area conflicts need some attention. Economic benefits from forest management activities are accruing to First Nations.
Accepting Society's Responsibility for Sustainable Development	Partial	Efforts by Tembec, MNR and Taykwa Tagamou Nation (TTN) efforts have resulted in a long-term forestry agreement between Tembec and TTN. The workload of the Cochrane LCC needs to be reviewed. The management plan has correctly identified a decrease in the harvest level from the Forest.

the six criteria set out in the 2000-2005 FMP as demonstrated in Table 8. Based on a review of the 2005-2010 FMP, interviews with both Tembec and MNR staff, interviews with the LCC and public input, field observations and the review of the forest management planning documentation, progress is evident in all of the criteria except one. The audit team noted that the long-term health and vigour of the Forest is being provided for by using forest practices within the limits of silvicultural requirements as per the CFSA.

However, based on the information given, particularly the age-class structure of the Forest and guideline requirements, a continuous, even flow of wood products from the Forest is not possible as a decline of approximately 30% from the 2005-2010 level is predicted over the next 30 years before slowly increasing.

To clarify, the decrease in the AHA is strongly related to deferred area (particularly for marten cores) and the current shape of the age-class distribution with few 40-80 year old stands compared to 140+ year-old black spruce stands. The age class structure of the forest coupled with the guideline deferrals has a significant and dynamic negative affect on wood supply.

The audit team notes that although Recommendation 9 and Recommendation 15 are directed to improve silvicultural activities, additional expenditures on silviculture (planting/seeding) will not improve volume appreciably, since the amount of upland spruce sites is only approximately 16% of the overall forest area compared to lowland spruce sites that comprise 70% of the forest area. Recommendation 9 and Recommendation 15 are primarily directed to the upland sites.

In addition, the large amount of FTG area entered back into the inventory during the audit term will not increase wood supply in the next 30 years. The FTG assessments were conducted on sites depleted prior to 1995 and in some cases in the 1970s and will therefore not be available for harvest in the next 30 years.

As stated in Section 3.7.1 of the audit report, the Company determined that the declining level of harvest cannot be mitigated through increased silviculture efforts in the near terms. According to the TAR, the Company also made improvements or investments to the Cochrane sawmill as a way

of addressing the forecast decline in fibre supply. The upgrades made in the sawmill improved the mills ability to handle and process smaller diameter logs and improved its lumber recovery factor. With the improvements made in lumber recovery, less roundwood volume is needed to produce the same volume of lumber.

The audit team concludes that forest sustainability is being achieved except that the indicator under Multiple Benefits to Society cannot be met. A continuous and consistent wood flow is not possible with the existing guidelines and present age-class structure of the Smooth Rock Falls Forest.

3.8 Contractual Obligations

Sustainable Forest Licence Requirements

The Sustainable Forest Licence number 541841 was granted to Malette Inc. back in 1995. Shortly thereafter, Tembec Industries Inc. purchased Malette Inc. and has held the SFL ever since. Since 1995 the SFL was amended several times to reflect boundary changes due to the OLL initiative. The SFL contains wood supply commitments in Appendix E of the licence. The status of Tembec's achievement in meeting the wood supply commitments is listed below.

- Grant Forest Products Inc. (Grant) in Timmins is to have available annually a target volume of 50,449 m³ of non-veneer quality aspen poplar logs and 9,200 m³ of non-veneer quality white birch logs. Only 28% of the target volume of aspen poplar logs and none of the white birch commitments were met. The requirement to have a long-term Memorandum of Agreement (MOA) in place was met.
- Norbord Industries Inc. (Norbord) in Cochrane is to have available annually a target volume of 1,200 m³ of veneer quality aspen poplar logs. This target volume was met but the long-term MOA is not in place. Tembec indicated that a final review of the MOA is being done and that the agreement is close to being ready for signing.

Discussions with Tembec and Norbord revealed that the Norbord veneer commitment is being revised and the SFL is being amended to reflect the correct commitment volumes for Norbord. Tembec cannot sign an MOA until the SFL reflects

the correct commitment volume. Tembec and Norbord otherwise have an MOA drafted that both parties are willing to sign. Therefore no recommendation is warranted.

The audit team noted that the target volume of non-veneer quality aspen poplar logs and non-veneer quality white birch logs in Appendix E of the SFL exceeds the allowable harvest levels set in the FMP (Table FMP-20). The audit team recognizes that the volumes in Appendix E are "target volumes" and subject to availability as determined by the forest management planning process. However there is a significant difference between the 50,449 m³ per year target volume stated in Appendix E and the 23,916m³ per year forecast in the 2000-2005 FMP in Table FMP-23. The SFL document should have been amended to reflect the available amount of aspen as determined in the FMP. The 2000-2005 FMP was approved with a significant shortfall in what the SFL committed through Appendix E and what the FMP forecast. The audit team believes that if required, the SFL document should be amended within a reasonable time period after an FMP is approved so that the forecast volume in the FMP and target volumes in Appendix E are closely aligned.

Suggestion 19: The Ministry of Natural Resources should ensure that the Appendix E target wood supply commitments in the Sustainable Forest Licence are adjusted within a reasonable time period to reflect what is forecast in the Forest Management Plan.

The 2005-2010 FMP has reduced the forecast of non-veneer aspen poplar log utilization (Table FMP-23) to 18,931 m³ per year and the forecast of non-veneer white birch logs has been reduced to 1,477 m³ annually. The audit team expects the SFL document will now be amended so that the target volume in Appendix E is similar to the forecast volume of 18,931 m³ per year in the 2005-2010 FMP.

The auditors also noted that Grant Forest Products Inc., as well as others, are able to receive and process balsam poplar logs in addition to aspen poplar logs. The audit team was told that on the Smooth Rock Falls Forest, balsam poplar could comprise up to 30% of the poplar volume in a stand. This may assist in meeting the needs of the other hardwood users on the Forest.

Hardwood harvest from this Forest has traditionally been on an "as encountered" basis. Aspen harvest and this wood supply commitment did not appear to be a business priority for Tembec. Areas selected for harvest appear to have been chosen to facilitate the needs of Tembec with the aspen harvest being secondary.

Discussions with staff from both Tembec and Grant revealed that there has also been difficulty in coming to agreement with a purchase price for the product. In order to ensure security of supply from the Forest it is clear that both companies must continue to work on the issue. Mechanisms to ensure adequate harvest and delivery to Grant need continual attention in the opinion of the audit team.

The delivery of aspen according to the wood supply commitment should be viewed as an important target rather than an incidental by-product of conifer harvest. The forest harvesting allocations based on the AHA would be sufficient to supply the wood supply commitment to Grant during the term of the 2005-2010 FMP provided that the bulk of the allocations are harvested. This implies that effort be made to target those areas that contain the majority of the aspen.

Suggestion 20: Tembec and Grant should continue to meet on an annual basis to review wood deliveries and develop procurement strategies for the next Annual Work Schedule.

Tembec appears to be meeting its SFL requirements for surveys (e.g. accelerated FTG surveys) and is making efforts to meet the new Forest Information Manual²⁷ (FIM) requirements. Evidence to this includes submission of new and/or expanded tables and requirements in the annual reports (e.g. post prescribed burn reports, silvicultural treatment digital map files, annual report of planned clearcuts, submission of annual report via the FIM portal etc.).

MNR and Tembec have made considerable efforts to identify and implement ways of achieving a more equal participation by Aboriginal communities in the benefits provided through forest management planning. The audit team has given a Best Practice in Section 3.2.3.

²⁷ MNR. 2001. Forest Information Manual. Queen's Printer for Ontario. 400 pp.

Natural Disturbance and Salvage

The RPFO states that aspen decline, partly a result of repeated defoliation by the eastern forest tent caterpillar, began sometime during the 1995-2000 period but was not noted as significant until the 2000-2001 growing season. The TAR states that the actual aspen volume harvested in some blocks was reduced by as much as 35%. The audit team believes that both Tembec and MNR were slow to react to the aspen decline problem and as a result valuable fibre was lost. In fairness the spectre of aspen decline is a continuing event without a definable starting point (i.e. unlike losses due to fire or blowdown). The audit team did note that Tembec has recently begun an initiative and addressed the aspen decline on a regional basis.

Section 6 of the SFL makes provision for the salvage of damaged or killed forest resources on the licence area. Either the MNR or the Company is to give notice to the other party of the location of such resources. Clause 6.1 states that within 30 days of the giving of notice, the Company shall notify the MNR whether or not the Company desires to salvage the killed or damaged forest resources. Provision is then given to have either the Company or MNR arrange to have salvage operations take place. This appears not to have happened in a timely manner. Of greater significance was the fact that Tembec appears to have been reluctant in developing an overlapping license agreement to allow Grant to conduct salvage operations on the Forest under an Overlapping Forest Resource License (OFRL) on the Smooth Rock Falls Forest. Tembec did not produce an OFRL agreement for Grant to get into aspen salvage until the quality of the timber had deteriorated and utilization was not possible. The Ministry of Natural Resources should have stepped in to facilitate this licence.

Recommendation 22: Tembec and the Ministry of Natural Resources must address insect and disease events in a timely manner to maintain the health of the Forest as required in the Crown Forest Sustainability Act and the Sustainable Forest Licence.

Wasteful Practices

Wasteful practices according to the Scaling Manual definitions are common on most of the

harvested areas that were inspected by the audit team. Tembec was not meeting generally accepted utilization standards or tolerances for wasteful practices on the Smooth Rock Falls Forest. Recommendation 13 and Recommendation 14 in Section 3.4.2 were developed to address this issue.

A change of perspective is required to bring utilization in line with provincial standards notwithstanding any local tolerances arising from Recommendation 13.

Forest Compliance

Five-year compliance plans and annual compliance schedules were prepared in accordance with provincial directives and the terms of the SFL agreement. The Company has a good program of training and compliance monitoring which is linked to its EMS work instructions. A detailed discussion with the EMS coordinator revealed a very sophisticated system, which served planning, training, compliance monitoring, and EMS requirements very well. The Company also has a number of fully trained compliance inspectors who are provincially certified.

Tembec conducted compliance inspections of its forest harvesting, renewal and maintenance activities in accordance with provincial requirements and the details of the compliance plans and annual compliance schedules.

The scope of compliance reports completed was consistent with the compliance plans and provincial expectations and these reports have been provided to the Crown per the terms and in the manner prescribed at the time of inspection. There was an issue in respect of late submission of reports (failure to meet submission timelines), which was expressed through a compliance order from the MNR. Tembec developed a compliance tracking system to ensure that required reports were submitted on time and corrected this problem.

As discussed in other sections of this report, the audit team is critical of the detail found on the compliance reports inspected in terms of consistency with provincial legislation as found in the Scaling Manual and other guidelines. Fully compliant reports submitted by Tembec that were apparently unchallenged or accepted by the MNR

were filed for areas with obvious compliance issues. These issues relate mainly to utilization and wasteful practice problems. Most of the compliance issues are attributable to the style and season of harvest and available markets, however, there is no documentation in the FMP of standards which deviate from the Scaling Manual or other guidelines. The audit team feels that this indicated an undocumented local standard or generally accepted tolerance, which is not supported by legislation (see Recommendation 13).

Independent Forest Audit Action Plans and Status Reports

The Company was required to submit an action plan responding to the 2000 IFA recommendations within two months of receiving the final audit report and provide a status report on the implementation of the recommendations within two years following approval of the action plan. The first draft IFA action plan was submitted to the MNR June 11, 2001, and was not approved until June 18, 2002. It took a year to have Tembec and the MNR agree on the final version of the action plan. Tembec submitted the first draft status report on April 10, 2003. However, the report did not clearly articulate the actions taken by Tembec to address the recommendations and an improved status report was submitted on March 22, 2004, and approved by MNR in October 2004. The approved action plan and status report were each over a year past the required deadline. The audit team recognizes that substantial dialogue and interpretation took place between Tembec and MNR to complete a very thorough action plan and complete status report. However, a tardy response to IFA recommendations can lead to further forest management problems or issues. The dates for submission of action plans and reports should be adhered to and a recommendation is warranted.

Recommendation 23: Tembec and the Ministry of Natural Resources must meet the Independent Forest Audit submission dates for action plans and status reports.

The public has been notified of the availability of IFA reports and associated action plans on the MNR website at <http://ontariosforests.mnr.gov.on.ca/audit.cfm>.

All 13 recommendations from the 2000 IFA were directed to the Company although several specific actions were required by the MNR to complete some of the recommendations (e.g. approval by the Regional Silvicultural Specialist of successional values). Tembec recorded a matrix detailing 53 action items required to complete all the recommendations, identifying the people responsible for completion, the completion date, the expected result and the status, which was provided to the audit team.

The audit team found 12 of the 13 recommendations were completed and implemented in a satisfactory manner. Table 9 provides the status of the recommendations. In particular, the audit team was pleased that approximately 50,000 hectares of backlog and NSR have been surveyed of which approximately 41,000 hectares have been determined to be free growing and returned back into the productive forest inventory. A primary concern of the 2000 IFA was the wide spread use and reliance on CLAAG as a universal harvesting prescription as well as its results in modeling. Eight of the 13 recommendations (Recommendations 1, 2, 6, 7, 8, 9, 10 and 11) addressed concerns in this area. The Company gathered survey data and analyzed the success of CLAAG on a variety of different sites. In order to assess the effectiveness of the FOPs being applied Tembec conducted post-treatment assessments five to nine years after harvest. These assessments are conducted prior to the FTG assessment age (normally ten years) to determine if any intervention is required to bring the stands to the FTG stage within the time frames stipulated in the SGRs. The audit team was able to confirm these findings from their observations in the field.

Recommendation 10 from the 2000 IFA addressed the implementation of alternate regeneration techniques such as Group Seed Tree and seeding where CLAAG was not likely to succeed. Recommendation 15 of this report is directed to address the shortcoming.

Forest Renewal Trust Fund

The Company maintains records of all of the activities undertaken under the auspices of the Forest Renewal Trust Fund. The audit team reviewed the Specified Procedures Report and randomly selected and viewed a representative

Table 9. Completion Status of the 2000 Independent Forest Audit Recommendations.

#	Recommendation	Status	Completed Yes/No
1	Regeneration success assumption used in modeling must reflect actual results.	The SFMM model was updated to include new post-harvest renewal success and updated silvicultural cost.	Yes
2	Prioritize silvicultural treatments based on treatment effectiveness and acceptable results.	A high potential CLAAG forest unit was created (SB3) and used in FOPs and post harvest assessments. The work assisted in the development of a more accurate renewal cost in SFMM for the 2005-2010 FMP.	Yes
3	Apply the <u>Timber Management Guidelines for the Provision of Moose Habitat</u> ²⁸ .	Values surveys were done in 2003 and 2004, MAFAs were flown, training in applying the NDPEG and moose guidelines was given and the 2005-2010 FMP documented provision of moose habitat.	Yes
4	Improve protection of habitat for stick-nesting birds.	Training module for contractors upgraded and delivered, a specific prescription for the 2005-2010 FMP was developed for protecting goshawks, owls and unidentified stick nesting accipiters, buteos and eagles.	Yes
5	Need for accurate stand information.	Database developed, inventory strategy in place, and the company planning inventory data organizer is being used to keep and update stand level information.	Yes
6	Implement CLAAG properly.	Post-harvest CLAAG surveys conducted by Tembec between 2000 and 2004 indicated more than half of the stands required planting. Six of 30 stands inspected have cut strips widths equal to or greater than leave strips. Limited information on Spruce Intensive and Mixedwood forest units. Pre- and post-harvest assessments now regularly completed for most blocks. In addition, a standard operating procedure is in place and used annually by contractors. Inspections reviewed contained information regarding cut/leave strip ratios and notes on amounts of advanced spruce regeneration.	Yes However, still need improvements in training. See Suggestion 10.
7	Develop and implement a remedial action plan for unsuccessfully regenerated stands.	Treatments identified for all non free-growing stands and two years of projects completed. 2,910 hectares received treatments – 1,066 hectares of NSR from the 1990-1995 term and 1,840 hectares of backlog was infill planted or received supplementary spray. A sub-sample of these treatments was checked during the field audit.	Yes
8	Identify high potential CLAAG sites and stratify areas in the field.	Spruce CLAAG forest unit developed for 2000-2005 FMP for high potential CLAAG sites. Sites visited were in fact often appropriate CLAAG sites; portions not appropriate were stratified for other renewal treatments.	Yes
9	Implement effective FOPs by winter 2001.	Standard practice since April 2001.	Yes

²⁸ MNR. 1988. Timber Management Guidelines for the Provision of Moose Habitat. 10 pp. + Appendices.

Table 9 continued.

#	Recommendation	Status	Completed Yes/No
10	Use alternate regeneration techniques where CLAAG has low potential for success.	15 SGRs amended to 2000-2005 FMP to allow Group Seed Tree and Seed Tree treatments. Group Seed Tree prescriptions viewed were not effective - groups were not appropriately placed on one site and another site had little seed bed. These sites are now scheduled for a planting treatment.	No Tembec to address additional comments from MNR and complete training. See Recommendation 15.
11	Increase compliance training.	Compliance training conducted, annual compliance meetings held between MNR and Tembec. Company non-compliances have been reduced since 2001.	Yes
12	Include MNR report of progress with First Nations in Annual Reports.	ARs completed annually as per requirement.	Yes
13	Conduct FTG surveys with ground-truthing.	Approximately 50,000 hectares surveyed between 2000 and 2005. Ground-truthing was completed and targets were met. The audit team noted a number of shortcomings with the program and developed two recommendations in Section 3.6.1. (Recommendation 17 and Recommendation 18)	Yes
14	Minister extend the term of the SFL.	SFL extended to reflect new term April 1, 2000 to March 31, 2020, dated and signed by Minister on March 9, 2005.	Yes

sample (52% of the areas, Figure 1) of the activities reported as carried out with funds from the Renewal Trust Account for the fiscal year April 1, 2003 to March 31, 2004. The mapped records accurately reflect accomplishments in the field.

Crown Dues

A review of MNR statements revealed that there are no outstanding (30 days past-due) forestry futures or stumpage charges. Tembec is required to maintain a minimum balance in the Forest Renewal Trust Account as specified in the SFL. A significant surplus existed in the trust account in the late 1990s. In order to bring the amount to a reasonable level, there was no charge on conifer during the 2000-2005 period and aspen renewal dues were charged at \$0.50 per m³ until 2003, after which the rate was dropped to zero. The minimum balance was maintained throughout the five-year audit period.

The SFL requires an analysis of the forest renewal charges to be carried out by the licence holder no less frequently than every five years in conjunction with the term of the FMP. No documentation was available to indicate that this

was done. Tembec submitted a renewal rate that was changed by the MNR after the MNR completed a thorough five-year analysis.

Recommendation 24: Tembec must ensure the minimum required analysis of forest renewal charges is completed every five years as specified in the Sustainable Forest Licence.

Silviculture

A sampling of all types of eligible silviculture work completed during the term was verified on maps/stand listings and was observed in the field. Treatments included chemical and mechanical site preparation, seeding, planting and tending. Natural renewal treatments were also viewed. Tembec did not participate in a pest control program during the 2000-2005 term.

Work was carried out as reported with funds from the Renewal Trust Account. Most treatments were effective with the following exceptions:

- Tembec experimented with Group Seed Tree treatments during the term. It was determined that the Group Seed Tree

treatments viewed were inadequate to renew the sites due to poor site selection and inappropriate placement of groups (i.e. adjacent to stand boundaries rather than within the cutover). Tembec staff indicated that these areas would now be planted.

- A limited amount of spruce seeding occurred, which was deemed largely ineffective due to the competitive nature of the site and lack of suitable seedbed.
- Artificial renewal during the term mainly consisted of area-planting spruce on upland sites and spraying with herbicide when needed. However, due to the resulting site conditions (i.e. debris/trees and excessive duff), the audit team felt that the CLAAG pattern of harvesting reduced the effectiveness of artificial renewal treatments on upland sites.
- Some jack pine was also planted during the term but limited seed was available to produce planting stock.
- There was one non-compliance during the audit term as a result of over-application of herbicide and there were some cases where the necessity for spray was not demonstrated or herbicide had to be re-applied.

Sections 3.3.7, 3.4.3 and 3.6.1 of this report contain recommendations and suggestions aimed at improving the renewal program on the Forest.

Silviculture Monitoring and Effectiveness

Tembec improved the silviculture monitoring program significantly in the 2000-2005 term as compared to the prior audit term (largely a result of recommendations made in the 2000 IFA). A number of surveys were used to gauge the success of renewal and tending treatments and silviculture effectiveness. Forest Information Manual (FIM) compliant survey results were incorporated by GIS into the FRI. Available results were also used to aid in the development of silviculture inputs in the 2005-2010 FMP.

Key to the monitoring program during the audit term was the completion of FTG surveys on a large area of the Forest; 49,689 hectares (Table 7). By comparison, the 2000-2005 FMP predicted 7,600 hectares of FTG surveys to be completed during the 2000-2005 term.

Ground and aerial FTG surveys (following direction in the Free Growing Regeneration Assessment Manual (Draft)) conducted from 2000 to 2005 declared 41,411 hectares (about 83%) to be free-growing. A significant portion (38,558 hectares) of the FTG area surveyed was backlog (i.e. older harvested areas or naturally depleted forest (21-40 years) not yet deemed free-growing). Unfortunately, the original prescription for many of these older harvested areas was not known so an educated guess was made regarding the likely renewal treatments that occurred and the desired outcome (i.e. Tembec assigned a prescription package to the surveyed areas with a related SGR). Although this process was an attempt to quantify the areas surveyed, results of planned versus actual allow only a limited determination of the effectiveness of SGR standards. Text and tables for ARs 2002-2003 and 2003-2004 indicate that considerable area declared FTG in those years did not renew to the expected forest unit, based on the predictions of original silviculture prescriptions made by Tembec.

The remainder of area surveyed (11,599 hectares) consisted of harvest blocks from the 1990-1995 term (i.e. most was surveyed prior to the 15-year regeneration standard in the 1990 TMP; however, reduction of this standard to ten years in the 2000-2005 FMP made these areas eligible for survey during the audit term). The area surveyed from the 1990-1995 depletion period closely matches the harvest area during the 1990-1995 term (12,008 hectares), 409 hectares have not been surveyed.

Of the 40,623 hectares deemed NSR in 2000, over 95% was assessed during the FTG surveys completed in 2000-2005. The NSR area remaining (8,607 hectares) is now correctly classified: 2,442 hectares require tending, 3,155 hectares require infill planting (low density), 1,087 hectares require infill planting (medium density), 657 hectares require infill planting with suggested site preparation and 1,266 hectares are well stocked and need height growth.

Follow up treatments were conducted on 2,910 hectares of NSR area during the 2000-2004 period. According to the TAR, 860 hectares of NSR area from the 1990-1995 term were tended and 206 hectares were fill planted. In addition, about 1,840 hectares of backlog area received supplemental herbicide treatments or fill planting.

Field observations and review of records/maps confirmed completion of the FTG surveys (Figure 28). However, the audit team noted a number of shortcomings with the program and developed two recommendations in Section 3.6.1.

Records provided by Tembec indicated that 18,433 hectares are currently classified as X land (harvested since September 1995 and are not yet FTG), zero hectares are considered Y land (site prepared in winter 1994, or planted in spring 1995). To date 1,916 hectares of Z land (harvested before September 1995, and not yet FTG) have been treated, and 3,151 hectares of Z land have not been treated.

Tembec demonstrated progress to date in addressing the required regeneration of X, Y and Z lands. As expected, the amount of X land is consistent with harvest depletions that occurred on the Forest since September 1995. Remedial treatments were viewed on a portion of the class Z lands and NSR areas were also witnessed.

In summary, renewal operations during the audit term were completed as per the FMP, and AWSs and ARs correctly reported on silviculture and monitoring accomplishments. However, due to changes in forest units in successive planning terms, lack of a requirement for FOPs in past plans, and limited requirements regarding RPFO content, the RPFOs and ARs reviewed had limited information regarding silviculture effectiveness, and this is addressed in Recommendation 18. Future RPFO/AR documents are expected to be more informative as a result of improvements made in the 2000-2005 FMP and 2005-2010 FMP.

Operations on Mining Claims

Sections 22.2 and 22.3 of the SFL require MNR, following receipt of each AWS, to advise all recorded and patented claim holders located within the proposed operating area of the Company's intent and advise the Company of any known, new or existing activities within the



Figure 28. Typical FTG area from a CLAAG pattern of harvesting.

Licence Area pursuant to the Public Lands Act.²⁹

Based on interviews with MNR the AWS submitted by Tembec each year is reviewed by MNR to determine if any activities are planned on mining leases or claims. If so, all recorded and patented claim holders located within the planned operating areas are added to the district mailing list to receive AWS notices. For much of the audit period there was little evidence available to indicate whether or not letters were sent out advising any recorded and patented claim holders of potential forestry activities occurring in their areas. The list of recorded and patented claim holders used by MNR is updated using the Ministry of Northern Development and Mines' web-based database.

Discussions with Tembec representatives indicated that the Company has never received a list of Land Use Permit (LUP) holders from MNR nor has Tembec received confirmation from MNR that recorded and patented claim holders were notified. However, Tembec has, on a couple of occasions, received a request for comment from MNR regarding requests for LUPs on the Forest from other parties. Based on the lack of evidence available, the audit team makes the following recommendation.

Recommendation 25: The Ministry of Natural Resources must maintain sufficient records to demonstrate that the requirements of Sections 22.2 and 22.3 of the Sustainable Forest Licence are met.

²⁹ Public Lands Act, R.S.O. 1990. c. P. 43.

4.0 Summary of Conclusions and Recommendations

Commitment

The Ministry of Natural Resources (MNR) and Tembec have corporate policy statements outlining their commitment to sustainable forest management. The Ministry of Natural Resources' (MNR) commitment is described in the Policy Framework for Sustainable Forests, the 2000 policy statement Beyond 2000 and the 2005 policy statement Our Sustainable Future. Tembec has an Environmental Policy in place that is implemented by two Environmental Management Programs: *Impact Zero* and *Forever Green*, to minimize the impact of manufacturing activities and forestry operations on the environment. The Smooth Rock Falls Forest also received FSC certification in early 2005.

Based on the interviews, site visits and documentation, the audit team is satisfied that MNR and Tembec are working to meet their commitments. The audit report identifies areas where improvements are needed.

Public Participation

The Cochrane LCC deals with four forests within the entire Cochrane District and as a result LCC members believe the large number of amendments presented at each meeting leaves little time for meaningful input and other business. A recommendation to have the MNR develop a strategy to better meet the consultation requirements of the LCC is given. The LCC provided considerable input to the audit process and the participation by several members was invaluable.

There are two First Nations within the Smooth Rock Falls Forest who are impacted by the FMP: Taykwa Tagamou Nation and Moose Cree First Nation. Each First Nation was invited to participate in the planning process for the 2000-2005 FMP and given the option of having a separate Native consultation process. Moose Cree First Nation chose to be involved through the standard public consultation process. Taykwa Tagamou Nation (TTN) chose to participate in the Forest Management Native Consultation Program and consensus was reached on native values and prescriptions. The audit team noted considerable effort by all three parties resulted in TTN, Tembec and MNR becoming signatories to a Working Relationship Agreement. Taykwa Tagamou Nation and Tembec are also signatories to a Long-Term Forestry Agreement and TTN is the primary harvesting contractor on the Forest. A Best Practice was directed to Tembec and MNR for the exemplary efforts in establishing a relationship with TTN and providing opportunities for TTN to realize economic benefits from forest management activities.

A recommendation for the MNR to maintain adequate records of public consultation communications was given to ensure all the FMPM requirements are met.

Forest Management Planning

A competent planning team capably handled forest management planning. Interviews with stakeholders and the correspondence files indicated that public comments were considered and responded to during the planning process. The appropriate sources of direction were made available to and used by the planning team. Operations inspected in the field were generally found to have been implemented in accordance with the requirements of the FMP and the AWSs.

The composition of the planning team was appropriate and the team was chaired by a Registered Professional Forester. Unusually high staff turnover (particularly within MNR) had an impact on the planning team's effectiveness. Team members described a lack of depth within the team due to the turnover and inexperience. A suggestion to monitor staff turnover is given.

The description of the current forest condition is very comprehensive and meets the requirements of the 1996 FMPM.

The SFMM analysis of the selected management alternative revealed that for six species, habitat declines are below the bounds of natural variation for the SFL for periods ranging from 30-90 years. A recommendation is directed to have the MNR assess the implications of the habitat declines at the ecoregional scale for these species.

Objectives and targets were included in the 2000-2005 FMP to address forest diversity, social and economic matters, provision of forest cover and silviculture as required by the CFSA and FMPM. However, many objective targets were not quantifiable or simply stated, "works towards continual improvement". A review of the 2005-2010 FMP objectives, targets and strategies proved that the planning team has made a good effort to provide more measurable targets. The FMP documentation provided good background information to the SFMM modelling inputs.

The strategic modelling was well done and plan documentation of modelling results was generally very accurate. Several suggestions for Tembec to consider during strategic planning and modelling for the 2010-2020 FMP are provided.

Two recommendations are directed to the MNR to provide adequate resources so that non-timber values surveys and woodland caribou values are available in areas of proposed forest management activities. A recommendation was directed to Tembec to ensure that the specifics of the modified portion of hunting and trapping concern prescriptions are determined prior to annual work schedule submission to the MNR.

The audit team noted that there was not a strong correlation between post-harvest transition rules, the amounts planned for harvest by forest unit, and the forecasted levels of renewal and tending. As a result, a recommendation was made to have Table FMP-25 completed as required.

Changes in forest units between the 1995-2000 Timber Management Plan (TMP) and the 2000-2005 FMP allowed for the creation of SGRs that are more site specific. However, the SGRs in the 2000-2005 FMP and 2005-2010 FMP list a preferred treatment package for each management intensity. As a result, a suggestion was developed to identify only one preferred treatment for each current/future forest combination, to allow a strong correlation between the planned renewal program and the strategic direction in the FMP.

The audit team found that Tembec's renewal support and access planning for artificial regeneration in the 2000-2005 FMP was lacking. A recommendation was produced aimed at improving future planning in this regard.

All of the areas selected for harvest, renewal and tending are consistent with the selection criteria. The harvest on the Smooth Rock Falls Forest during the audit period did not meet the stated objectives of Tembec. The wood supply of poplar veneer to Norbord met the wood supply directive however the wood supply to Grant was less than the committed volume. One suggestion is directed to improve the wood supply commitment for poplar species to Grant, and another suggestion is given to ensure that the wood supply commitment in the SFL aligns with the forecast in the FMP.

The 2000-2005 Smooth Rock Falls Forest FMP contained no major amendments, one minor amendment and 24 administrative amendments.

The audit team believes the amount of area for both harvest and silviculture identified in each AWS is excessive and beyond what should be practically needed for operational flexibility and directed a suggestion to Tembec to reduce the area to a more reasonable level.

Plan Implementation

The audit team inspected 3,395 hectares of harvesting operations, representing in excess of 40% of the total harvest that occurred during the audit period. The company has an excellent system of cut control

that forms part of its Environment Management System (EMS) commitments. Areas of Concern (AOC) and regular block boundaries are established using GPS and were found to be intact.

Tembec does a good job of site protection overall. The widespread use of CLAAG harvest and the predominance of winter-only cutting mean that sites are generally well protected (Figure 29). However, a recommendation was given to Tembec to conduct some refresher training with their contractor's feller-buncher operators to ensure that the desired results of CLAAG harvest are clearly conveyed and understood. Tembec must also ensure that slash management through piling, piling and burning, or slash distribution be carried out wherever logging slash is accumulated.



Figure 29. Successfully regenerating black spruce harvested areas.

The audit team believes a change of perspective is required to bring utilization in line with provincial standards and that part of the solution lies in greater diligence on the part of operators, supervisors, and compliance inspectors to improve the standard of practice in respect of timber utilization. The other half of the answer to this issue lies in better documentation of locally acceptable utilization standards. Several recommendations and a suggestion are directed to Tembec dealing with utilization issues.

The audit team viewed a sampling of renewal activities from those areas where activities were conducted during the five-year term of the audit. This included examples from each type of renewal activity and from each of the five years being audited to assess the success of regeneration prescriptions. Renewal activities reviewed were for the most part conducted as planned in the FMP and documented in the AWSs/ARs and were effective; particularly where CLAAG protected adequate amounts of spruce advance regeneration. However, based on deficiencies viewed, the audit team felt that the artificial renewal program appeared to be makeshift versus planned. Enhanced planning as a result of Recommendation 9 should strengthen Tembec's artificial renewal program. A suggestion was also developed to improve implementation of the artificial renewal program specifically through maximization of site potential and

occupancy. There were also issues with Group Seed Tree renewal sites visited and a recommendation was included.

It was noted that pre-harvest assessment information did not lead to FOP changes prior to operations commencing and Tembec received a recommendation to revise Forest Operation Prescriptions prior to operations commencing when the original Forest Operation Prescription is inappropriate for actual site conditions.

Tending operations viewed were completed as planned in the 2000-2005 FMP and documented in the AWSs/ARs and were effective on most sites. A suggestion was developed to improve the program.

A number of secondary and tertiary roads built during the audit term were inspected by the audit team and found to be built as planned and to appropriate standards. Winter water crossings were well done with little evidence of riparian vegetation disturbance and good removal of fill logs. Tembec was given a suggestion to make every effort to utilize merchantable fill logs after they are removed from winter water crossings.

All-weather water crossings were generally well done with adequate culvert pipe lengths, good fill slopes to prevent erosion, and good use of filter cloth and rip-rap to help prevent silt entering the water course. Tembec has successfully used vegetative mats, scooped from the forest floor by a backhoe and "tamped" into place along the fill slopes beside water crossings (called "mossing"), to stabilize these areas quickly.

Monitoring

Compliance monitoring of forestry activities is a joint responsibility of the forest industry and MNR. Tembec now has a comprehensive silvicultural monitoring program for the Smooth Rock Falls Forest that is a significant improvement over the prior term. As a result of the 2000 IFA, Tembec greatly exceeded the planned amount of free-to-grow (FTG) surveying during the term (7,600 hectares planned versus 49,689 hectares completed). The previous IFA had serious concerns on the use of CLAAG on the Forest and directed the majority of the recommendations to improve monitoring of these silvicultural activities. The audit team found 12 of the 13 recommendations of the 2000 Independent Forest Audit were completed and implemented in a satisfactory manner. However, the audit team noted several inadequacies with the program and noted that MNR did not review the FTG results and does not have a silviculture effectiveness-monitoring program for the Smooth Rock Falls Forest. Two recommendations are given to correct these shortcomings.

The audit team directed a recommendation to both the MNR and Tembec to improve the risk assessment and approach used to ensure that compliance inspections are focused on forest management activities and/or operations that are most prone to non-compliance problems.

Achievement of Management Objectives and Forest Sustainability

The management objective associated with renewal was not achieved in the 1995-2000 period as pointed out in the 2000 IFA. The audit team found that the RPFO does not provide adequate rationale for not meeting all the renewal targets and strategies and a recommendation to Tembec to complete the information requirements of the RPFO and the Year Ten Annual Report was given.

The audit report provides a list of the objectives for the FMP under audit. The audit team has provided a review of the progress towards meeting the objectives by indicating whether the targets and strategies were met, not met or partially achieved. The recommendation or suggestion associated with an objective (if warranted) is also identified.

The audit team examined the 1995-2000 RPFO, which was written before the completion of the 2000-2005 FMP and includes the RPFO tables from the 1995-2000 period. It summarizes the actual operations that were carried out during that plan period. The 1995-2000 RPFO is also to contain an Assessment of

Forest Sustainability that is to be written in accordance with the requirements of the FMPM that applied at the time of the plan production. The RPFO generally met the phase-in requirements of the 1996 FMPM, but did not provide adequate rationale for not meeting all the renewal targets and strategies. A recommendation to address the information requirements of the RPFO was made.

The audit team appraised the TAR to determine whether the report was factually correct, assessed reasons for significant differences in forest condition between current and previous plan periods and determined if key factors are in line or supportive of the associated objectives in the plan. Several errors discovered by the audit team in the original TAR tables were due to an incorrect version of data and were corrected by the report author. The auditors believe the TAR attached in Appendix A is now complete and correct.

The audit team believes the Smooth Rock Falls Forest is being managed in a manner that only partially meets the six criteria of sustainability set out in the FMP as listed in Table 8. However, based on a review of the 2005-2010 FMP, interviews with both Tembec and MNR staff, interviews with the LCC and public input, field observations and the review of the forest management planning documentation, progress is evident in all of the criteria except one. The level of available harvest volume is predicted to decline by approximately 30% over the next 30 years. In order to help mitigate this decline, the Company has upgraded the Cochrane sawmill to improve its utilization (i.e. lumber recovery) of available roundwood volumes. In addition, analyses suggest that increased investments in silviculture in the near terms will not mitigate this decline. Based on the information given, particularly the age-class structure of the Forest and the impact of guideline deferrals, a continuous even flow of wood products from the Forest is not possible and the level of harvest is forecasted to decrease.

The audit team concludes that forest sustainability is being achieved except that the indicator under Multiple Benefits to Society cannot be met. A continuous and consistent wood flow is not possible.

Contractual Obligations

The wood supply commitments in Appendix E of the SFL to Grant Forest Products Inc. in Timmins needs to be amended to align with the forecast harvest level in the FMP. A suggestion is given to address this finding.

Aspen decline on the Forest was not noted as significant until the year 2000. Actual aspen volume harvested during the audit period in some blocks was reduced by as much as 35%. The audit team believes that both Tembec and MNR were slow to react to the aspen decline problem and a recommendation is directed to both to address insect and disease events in a timely manner to maintain forest health.

Wasteful practices according to the Scaling Manual definitions are common on most of the harvested areas that were inspected by the audit team. Tembec is not meeting generally accepted utilization standards or tolerances for wasteful practices on the Smooth Rock Falls Forest. Two recommendations address utilization and one recommendation deals with the need for better slash management.

The auditors found 12 of the 13 recommendations of the 2000 IFA were completed and implemented in a satisfactory manner. Recommendation 10 regarding the use of alternative natural regeneration treatment such as Group Seed Trees and seeding was not implemented successfully and further training has been scheduled as per the Action Plan for the 2000 IFA.

A review of MNR statements revealed that there are no outstanding (30 days past-due) forestry futures or stumpage charges and the required minimum balance was maintained throughout the five-year audit period. The five-year analysis of the forest renewal charges to be carried out by the licence holder was not completed and is dealt with through a recommendation.

Renewal operations during the audit term were completed as per the FMP and AWSs and ARs correctly reported on silviculture and monitoring accomplishments. However, the RPFOs and ARs reviewed had limited information regarding silviculture effectiveness. Future RPFO/AR documents are expected to be more informative as a result of enhanced requirements incorporated into the 2000-2005 FMP and 2005-2010 FMP.

Conclusion

The audit team concludes that, with the exceptions noted in the audit report, management of the Smooth Rock Falls Forest was in compliance with the legislation, regulations and policies that were in effect during the term of the audit, and the Smooth Rock Falls Forest was managed in compliance with the terms of SFL No. 541841 held by Tembec Industries Inc. Forest sustainability is being achieved as assessed through the IFAPP but the level of harvest is forecast to decrease for the next 30 years.

Table 10 provides a summary, by responsible party, of the number of recommendations, suggestions and best practices identified during the audit. A complete list is given in Table 11.

Table 10. Summary of Recommendations, Suggestions and Best Practices by Responsible Party.

	Tembec	MNR	Tembec and MNR	Total
Recommendations	10	11	5	26
Suggestions	15	5	-	20
Best Practices	-	-	1	1

Recommendation 26: Based on the outcome of this audit and performance with respect to its contractual obligations, the audit team recommends the Minister extend the term of the Tembec Industries Inc. Sustainable Forest Licence for a further five years.

Table 11. Summary of Recommendations, Suggestions and Best Practices.

Principle 1: Commitment
None
Principle 2: Public Participation
Recommendation 1: The Ministry of Natural Resources must develop a strategy to meet the consultation requirements of the District while managing the efficient use of Local Citizens Committee members' time.
Recommendation 2: The Ministry of Natural Resources must ensure that all public notices follow the process indicated in the Forest Management Planning Manual to ensure Aboriginal involvement requirements are met.
Recommendation 3: The Ministry of Natural Resources must maintain adequate records of all public consultation communications to document that Forest Management Planning Manual requirements were met at all stages of the forest management planning process.
Suggestion 1: The Ministry of Natural Resources should review the membership of the Local Citizens Committee to ensure that the interest groups identified in the Local Citizens Committee's Terms of Reference and the 2004 Forest Management Planning Manual are represented.
Best Practice 1: The audit team recognizes Tembec's and the Ministry of Natural Resources' exemplary efforts in establishing a relationship with Taykwa Tagamou Nation and applying the consultation process to encourage and maintain the participation of all parties.

Table 11 continued.

Principle 3: Forest Management Planning
Recommendation 4: The Ministry of Natural Resources must ensure that when a Selected Management Alternative causes loss of habitat for a species in the context of the forest management unit, that the habitat implications are examined for that species at the ecoregional scale.
Recommendation 5: The Ministry of Natural Resources must provide adequate funding to conduct necessary non-timber values surveys to ensure values in areas of proposed forest management activities are incorporated into planning and adequately protected.
Recommendation 6: Corporate Ministry of Natural Resources must make every effort to finalize woodland caribou values information data standards.
Recommendation 7: Tembec must ensure that the specifics of the modified portion of hunting and trapping concern prescriptions are determined prior to Annual Work Schedule submission to the Ministry of Natural Resources.
Recommendation 8: Tembec must ensure that Forest Management Plan Table FMP-25 reflects the trends of the Selected Management Alternative including expected post-harvest transitions.
Recommendation 9: Tembec must ensure that the artificial renewal program planning includes considerations for renewal support and access.
Recommendation 10: Tembec must ensure amendments are prepared and certified by a Registered Professional Forester as per the Forest Management Planning Manual requirements.
Recommendation 11: The Ministry of Natural Resources must ensure that amendments are distributed as per Forest Management Planning Manual requirements.
Suggestion 2: The Cochrane District of the Ministry of Natural Resources should continue to monitor staff turnover to ensure that adequate resources are available for forest management planning.
Suggestion 3: Tembec should augment the historic forest condition section in forest management plans to provide all relevant information in order to provide a thorough historical forest condition context for plan objectives regarding future forest condition.
Suggestion 4: Tembec should consider the following during strategic planning and modelling for the 2010-2020 Forest Management Plan:
• Reconciling natural succession with yield curves at points before and after succession. • Analyzing the available forest unit area and age class groupings over time in the assessment of forest sustainability. • Revising areas reserved from harvesting to accommodate foreseeable values protection and removing projected operational bypass percentages. • Maintaining consistent methodology for identification of projected (SFMM) reserve area and forecast operational reserve area. • Accurately reporting the land base, including low-stocked stands, in forest management plan tables.
Suggestion 5: Tembec should include known natural disturbances in harvest eligibility and selection criteria to allow for fibre recovery in the event of natural disturbances in the 2010-2020 Forest Management Plan.
Suggestion 6: The Ministry of Natural Resources should ensure Moose Aquatic Feeding Areas and stick nest surveys are combined in areas of proposed harvest when requirements for the methodology are met.
Suggestion 7: Tembec should identify only one preferred silviculture treatment package for each current/future forest unit combination.
Suggestion 8: Tembec should try to include no more than twice the area of operations which are actually intended to be implemented during the year in the respective Annual Work Schedule.
Suggestion 9: Tembec should develop an Information Management System that is able to accurately track forest management information and activities.

Table 11 continued.

Principle 4: Plan Implementation
Recommendation 12: Tembec must ensure that slash management through piling, piling and burning, or slash distribution is carried out wherever logging slash is accumulated.
Recommendation 13: Tembec and the Ministry of Natural Resources must closely monitor compliance to utilization standards set out in the Scaling Manual.
Recommendation 14: Tembec must review utilization standards with its contractors and supervisors.
Recommendation 15: Tembec must ensure that renewal treatments are based on site specific information and operators are appropriately trained to implement prescriptions correctly.
Recommendation 16: Tembec must revise Forest Operation Prescriptions prior to operations commencing when the original Forest Operation Prescription is inappropriate for actual site conditions.
Suggestion 10: Tembec should conduct refresher training with its contractors' feller-buncher operators to ensure that the desired results of CLAAG harvest are clearly conveyed and understood.
Suggestion 11: Tembec should take full advantage of all developing tree species markets.
Suggestion 12: Tembec should implement an artificial renewal program aimed at maximizing site potential and occupancy.
Suggestion 13: Tembec should make every effort to utilize merchantable fill logs after they are removed from winter water crossings.
Suggestion 14: Tembec should show backhoe operators the effectiveness of the vegetative mat slope stabilization technique ("mossing") and ensure they apply it at least 30 meters on either side of a water crossing where erodable fill has been used for road construction.
Principle 5: Systems Support
None
Principle 6: Monitoring
Recommendation 17: The Ministry of Natural Resources must review the Free-to-Grow results submitted during the term of the audit.
Recommendation 18: The Ministry of Natural Resources must develop and implement a silviculture effectiveness monitoring program for the Smooth Rock Falls Forest.
Recommendation 19: The Ministry of Natural Resources and Tembec must continue to improve the risk assessment and the system used to ensure that compliance inspections are focused on forest management activities and/or operations that are most prone to non-compliance problems.
Recommendation 20: The Ministry of Natural Resources and Tembec must meet reporting timelines for the submission of Forest Operations Inspection Reports under the Forest Operations Information Program.
Suggestion 15: Tembec should review and revise the pre-tending survey protocol and document it to ensure that it is explicable and effective.
Suggestion 16: Tembec should review the condition of minimally stocked stands and consider silviculture interventions to increase stocking levels.
Suggestion 17: Corporate Ministry of Natural Resources must provide a consistent methodology and more consistent suite of indicators to assess forest sustainability.
Suggestion 18: Tembec should refrain from changing forest units from plan to plan to allow for credible assessments of whether the Smooth Rock Falls Forest is being managed sustainably.

Table 11 continued.

Principle 7: Achievement of Management Objectives and Forest Sustainability
Recommendation 21: Tembec must complete all the information required in the Report of Past Forest Operations/Year Ten tables to be included in the Year Ten Annual Report.
Principle 8: Contractual Obligations
Recommendation 22: Tembec and the Ministry of Natural Resources must address insect and disease events in a timely manner to maintain the health of the Forest as required in the Crown Forest Sustainability Act and the Sustainable Forest Licence.
Recommendation 23: Tembec and the Ministry of Natural Resources must meet the Independent Forest Audit submission dates for action plans and status reports.
Recommendation 24: Tembec must ensure the minimum required analysis of forest renewal charges is completed every five years as specified in the Sustainable Forest Licence.
Recommendation 25: The Ministry of Natural Resources must maintain sufficient records to demonstrate that the requirements of Sections 22.2 and 22.3 of the Sustainable Forest Licence are met.
Suggestion 19: The Ministry of Natural Resources should ensure that the Appendix E target wood supply commitments in the Sustainable Forest Licence are adjusted within a reasonable time period to reflect what is forecast in the Forest Management Plan.
Suggestion 20: Tembec and Grant should continue to meet on an annual basis to review wood deliveries and develop procurement strategies for the next Annual Work Schedule.
Conclusion
The audit team concludes that, with the exceptions noted in the audit report, management of the Smooth Rock Falls Forest was in compliance with the legislation, regulations and policies that were in effect during the term of the audit, and the Smooth Rock Falls Forest was managed in compliance with the terms of Sustainable Forest Licence No. 541841 held by Tembec Industries Inc. Forest sustainability is being achieved as assessed through the Independent Forest Audit Process and Protocol, with the exception that a continuous and consistent wood flow is not possible. The level of harvest is forecast to decrease for the next 30 years.
Recommendation 26: Based on the outcome of this audit and performance with respect to its contractual obligations, the audit team recommends the Minister extend the term of the Tembec Industries Inc. Sustainable Forest Licence for a further five years.

Appendix A

Comparison and Trend Analysis of Planned versus Actual Forest Operations Report

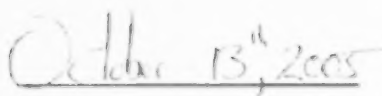
COMPARISON AND TREND ANALYSIS
OF PLANNED versus ACTUAL OPERATIONS REPORT

Prepared for the
2000-2005 INDEPENDENT FOREST AUDIT
OF THE
SMOOTH ROCK FALLS FOREST



Prepared By:

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Date:

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1.0 Introduction

One of the purposes of the Independent Forest Audit process is to compare the forest management activities carried out during the audit period with those planned in the Forest Management Plan (FMP). This trend analysis compares the forest management activities that occurred on the Smooth Rock Falls Forest (SRF) during the audit period April 1, 2000 to March 31, 2005 to those planned in the SRF 2000 – 2020 FMP. The analysis also includes a summary of planned versus actual forest management activities, which, occurred on the forest during the two proceeding 5 year operational periods, 1990 to 1995 and 1995 to 2000. The comparison of these three periods permits the development of a level of understanding of the evolving forest management practices on the Smooth Rock Falls Forest.

The 1990 to 1995 Timber Management Plan (TMP) was written by the Ministry of Natural Resources (MNR) according to the requirements of the Timber Management Planning Manual for Crown Lands in Ontario. During the period the unit was managed as a Company Management Unit. Malette Inc. was the primary licence holder conducting harvesting operations, with wood fibre going to the Malette pulp mill in Smooth Rock Falls and the Malette Inc. sawmill and waferboard mill in Timmins. Forest renewal work was the responsibility of the MNR and was administered from the district office located in Cochrane.

During the 1995 to 2000 period, responsibility for forest management transferred from the MNR to Malette Inc. and then to Tembec Industries Inc. based on the following changes. Malette Inc. and Cochrane District MNR staff co-authored the 1995 to 2000 Timber Management Plan. In early 1995, Malette Inc. and the MNR began Sustainable Forest License (SFL) negotiations for the SRF. On September 7, 1995 Malette Inc. was granted a Sustainable Forest Licence (SFL# 541841), under the Crown Forest Sustainability Act and assumed responsibility for the achievement of the management objectives as per 1995 – 2000 TMP. Between April 1, 1995 and September 7, 1995, the MNR was solely responsible for conducting renewal work on the forest. Tembec Inc., purchased Malette Inc. in 1995 and the SFL for the SRF was transferred to Tembec. Tembec and MNR jointly conducted renewal work on the SRF during the 1996-1997 operating year. From the 1997 – 98 operating year forward, Tembec as the SFL holder was responsible for renewal work on the SRF.

The 2000 to 2005 Forest Management Plan (FMP) was written under the direction of the 1996 Forest Management Planning Manual. Tembec Industries Inc. staff authored the 2000 – 2005 FMP.

1.1 Smooth Rock Falls Forest

The Smooth Rock Falls Forest is administered by the Cochrane District MNR and is located within the MNR's Northeast Region. The forest provides roundwood to Tembec sawmills in the towns of Cochrane and Timmins, the Tembec pulp mill in Smooth Rock Falls, the Norbord veneer/plywood mill in Cochrane, and Grant Forest Products oriented strand board (OSB) mills in Timmins and Englehart. With an area of over five hundred thousand hectares the SRF encompasses 25 townships and three unsurveyed areas in Cochrane District, 2 townships in Hearst District, and 3 townships in Timmins District.

The SRF boundary remained unchanged between April of 1990 and 2003. In 2003, at the time of the amalgamated Cochrane Moose River Management Unit FMP approval, portions of the Moose River Management Unit (5,734 ha) and the Cochrane Management Unit (24,596 ha) were transferred to the SRF licence area. The additions included areas of the Cochrane Management Unit around the town of Smooth Rock Falls and Inglis Township north of

Cochrane, as well as a portion of the Moose River Management Unit located along the Abitibi River. This landbase area change did not impact the period covered by this trend analysis. The change in the area of the SRF landbase was accounted for in the planning and preparation of the 2005 FMP.

The SRF is generally oriented in a north/south direction and spans a distance of 120 kilometres from the Abitibi Canyon in the north, to a point halfway between the towns of Smooth Rock Falls and Timmins in the south. At its widest point the SRF is approximately 70 kilometres wide. The Town of Smooth Rock Falls is situated roughly in the middle of the forest.

2.0 Comparison and Trend Analysis

The information contained in this trend analysis is drawn from the Reports of Past Forest Operations (RPFO)'s covering activities that occurred on the forest during the periods of 1990 – 1995 and 1995 – 2000. This analysis includes a to-date summary of operations conducted under the 2000 – 2005 Forest Management Plan (FMP) including renewal and maintenance activities, which occurred between April 1, 2000 and March 31, 2005 and harvesting activities, which occurred between April 1, 2000 and March 31, 2004. Harvest area from the final year of the 2000 – 2005 FMP is not included in this analysis because the annual report for that year will not be finalized until November 2005.

2.1 Summary of Total Area Under Management

Table 1 provides a summary of the Crown managed landbase by non-forested, forested, and production forest. Information for this table is taken from Table 4.8.2 of the 1990 and 1995 (TMP)'s, and Table 1 of the 2000 FMP. The landbase summary for the 1990 TMP was used as a benchmark.

The 1995 TMP shows a drop in both the productive forest and the total forested land. An inventory update that included a conversion from 1:15,840 townships mylars to 1:20,000 digital OBM's was completed in 1992 using new aerial photography taken in 1991. This update targeted barren and scattered portions of the forest. Crown managed forest in the 'barren and scattered' category was reduced by 47,356 hectares as part of this update process. The area was reclassified according to productive working group, mainly benefiting the 'spruce' working group, which increased by 36,700 hectares. The update reduced the area of the Crown managed forest by approximately 7,500 hectares. The reduction may be attributed to the buffering of streams that were incorporated into the new digital inventory layer and stand polygon coding errors. The stream buffers were given a type code of 70 (water), which would have excluded it from the area of the Crown managed forest. This new inventory took affect for the 1995 – 2000 FMP.

During the preparation of the 2005 FMP it was noted that a number of stand polygons were miscoded and had not been included in past area summaries of the Crown managed forest nor were any new parks or protected spaces created. No significant land transfers took place between 1990 and 1995 that would have reduced the area of the Crown managed forest.

The 2000 FMP landbase summary is consistent with that of the 1995 TMP. However it should be noted that approximately 20,900 hectares of 'Crown managed' forest was in the process of being reclassified to Crown unmanaged forest as part of the Ontario Living Legacy (OLL) process. This area was re-defined in the Strategic Forest Management Model (SFMM) as reserve forest and was unavailable for allocation of Available Harvest Area (AHA).

In preparation for the 2000 – 2005 FMP, the SRF landbase was updated based on harvest and natural depletion and the re-classification of barren and scattered stands to productive forest stands based on Tembec's free-to-grow (FTG) surveys. As illustrated by Table 1 and its associated graph, the amount of barren and scattered area (i.e. depleted area plus barren & scattered/NSR area) increased by approximately 13,500 hectares as compared to the 1995 landbase. The area of the 'spruce' working group decreased by approximately 12,000 hectares. The change is a result of the difference between area harvested (16,237 hectares) and area successfully surveyed as free-growing in time for inclusion in the inventory (4,204 hectares), between 1995 and 2000.

2.2 Description of Forest Units

Table 2 summarizes the forest units used in the three periods of this analysis. The sources of this forest unit description information are Table 4.11 for the 1990 – 1995 and 1995 – 2000 periods and Table FMP-8 for the 2000 – 2005 period.

The forest units remained constant for the 1990 and 1995 TMP's and were based on working group (i.e. leading species by % composition) and site class. Forest Unit name changes were made between the 1990 and 1995 TMP's (e.g. Pine versus Jack Pine) however the basis of the stand information used to classify the forest units remained unchanged.

The classification of forest units changed significantly for the 2000 FMP. Under MNR direction, stand characteristics such as, species composition, were used as a surrogate for predicting ecosite type, and thus general stand conditions, impacting site productivity and regeneration options. The new classification also facilitated the recognition of mixed species stand compositions and their importance to other forest values most notably wildlife habitat and forest diversity. As a result of this change in forest unit classification, it is difficult to directly compare forest unit areas in 2000 with those from the 1990 and 1995 TMP's. The large area represented in forest units whose classification and area has essentially remained unchanged, namely lowland black spruce, provides confidence that there has been no major shifts in forest composition over the term of this analysis.

2.3 Summary of Average Planned and Actual Harvest Volumes

Table 3 provides a summary on an annualized basis of the planned and actual volumes for the 3 periods. Volumes for the 2000-2005 period are based on the first four annual reports completed for the period. Information on planned volume levels is taken from TMP Table 4.18.1 for 1990 – 1995 and 1995 – 2000 and from Table FMP-21 for the 2000 – 2005 period. Actual volumes were taken from Table 6.3.1 of the annual reports for the 1990 – 1995 period, from RPFO-4 for the 1995 – 2000 period, and from the annual reports Table AR-5 for the 2000 – 2005 period. Volume for the 2004 – 2005 year is not included in the table. However 34,943 m³ of SPF were delivered according to the MNR TREES system and an estimated 160,000 m³ of SPF were harvested and are currently stockpiled and awaiting delivery. In 2004 – 2005, an estimated 8,000 m³ of aspen were also harvested and are awaiting delivery.

Actual conifer harvest volumes for the 1990 – 1995 period were 59% of the planned volume. The Smooth Rock Falls kraft pulp mill did not run at full capacity during this period as the mill was modernized to meet environmental quality requirements of the time. Production was reduced during construction. Due to market conditions, the Company maximized its harvest production to supply its sawmill in Timmins, which had also been upgraded to accept smaller logs. Harvesting was concentrated where sawlog quality material was more accessible and could be delivered to Timmins. Chips from Timmins and Hearst were supplied to the Smooth

Rock Falls mill for its production. Only 10% of the conifer volume harvested on the SRF was delivered in the form of roundwood to the Smooth Rock Falls mill compared to a planned level of 83%. Seventy-five percent of the volume harvested on the Forest went to Timmins and 15% was exchanged with other Companies. The overall result was that 65% of the 1990 – 1995 planned harvest area was depleted during that term on the SRF.

Only 13% of the planned aspen volumes were achieved during the 1990 – 1995 period because available supply greatly exceeded demand. The entire harvested aspen volume was delivered to Timmins Malette OSB mill, although the original intent was for 93% of the poplar volume to be delivered to the Smooth Rock Falls kraft mill. Although birch volumes were planned for harvest, no birch volumes were commercially harvested during the 1990 – 1995 period. Only a small amount of other conifer and other hardwood volumes were harvested during the 1990 – 1995 period.

For the 1995 – 2000 period actual conifer harvest volumes were 106% of the planned volumes. Harvest of mixed-wood stands was a contributing factor. Higher than expected conifer volumes were achieved, as a result of the conifer understory component of the stands not being captured or well represented in the stand description of the forest resources inventory. Also the concentration of harvest along the Mattagami River was found to be more productive than predicted by the forest resource inventory and generated higher volumes per hectare than planned.

Despite both a devastating mill fire and a strike at the Timmins OSB mill, actual harvested aspen volumes were 122% of the planned volume. The concentration of richer sites along the Mattagami River was found to be more productive than the average predicted by the forest resource inventory and generated higher volumes per hectare than planned.

Compared to the planned volume, minimal birch volume was harvested during the period. Actual total volumes harvested (all species) were 105% of the total planned volume. The significance of this volume achievement is amplified by the fact that 81% of the available harvest areas was actually depleted, (see section 2.4).

Actual volumes harvested during the 2000 – 2005 FMP have been annualized based on four years of harvest as reported in annual reports. Actual SPF harvest volumes were 55% of the planned volume of 240,030 m³ per year with harvest of 36% of planned harvest area occurring in conifer dominated stands.

Actual aspen volumes were 54% of the planned volume of 26,574 m³ per year, however more than 86% of the area within the aspen dominated forest units was harvested. Areas harvested during the period included stands affected by aspen decline. This reduced the actual aspen volume harvested in some blocks by as much as 35%. Incidental aspen (within the conifer forest units) accounted for 21% of the planned cubic metres.

Minimal birch volumes were harvested during the period as compared to planned volumes.

Underachievement of volume levels is largely the result of 41% of the planned area having been harvested during the period. The actual harvest on the forest was much lower than planned due to a number of factors. In 2000 improvements were being made to the Cochrane sawmill resulting in several months downtime. When the mill resumed operations, wood consumption levels were lower as the mill dealt with a prolonged period of start-up challenges. Over the four year period the sawmill also took additional downtime due to poor lumber market conditions which further reduced mill consumption levels. Over the same period Tembec's First Nation harvest contractors were dealing with harvesting capacity issues and internal community

upheaval. The location of planned harvest blocks in relation to existing access roads also presented operational challenges, which further reduced harvest levels. As a result only 36% of planned spruce forest unit area was harvested.

Forest units on mineral soil sites were harvested to a larger degree, with MxWd, as an example having 72% of the planned area depleted. SpINT, a black spruce forest unit was harvested to 34% of the planned area. Given that a higher portion of mineral soil sites were harvested; that 36% of the area harvested was within the conifer dominated forest units, and 53% of the planned conifer volume was achieved, the conifer yields per hectare forecast in the 2000-2005 FMP appear to be reasonably accurate.

From the 1990 TMP to the 2000 FMP, planned conifer volumes have declined by 23% (approx. 72,300 m³/year), planned aspen volumes have increased by more than 44% (approx. 8,200 m³/year) and birch volumes have increased slightly by 3% (100 m³/year). Total (all species) planned volumes have declined by 18% from the 1990 TMP to the 2000 FMP.

2.4 Summary of Planned and Actual Harvest Area

Table 4 compares, on an annualized basis, planned and actual area harvested for the periods 1990-1995, 1995-2000, and 2000-2005. Data on planned harvest levels was obtained from TMP Table 4.15 for the 1990 – 1995 and 1995 – 2000 periods and from Table FMP-18 for the 2000 – 2005 period. Information on actual harvest area was obtained from Table AR 6.1 for operations that occurred from 1990 – 1995. Information for the period 1995 – 2000 was taken from the 1995 – 2000 RPFO Table-2 and information for the four years 2000 – 2004 was taken from the corresponding annual reports Table AR-2. The numbers for the 2000 – 2005 period are annualized for the four years that have been reported to date. The forest units used during the 2000 – 2005 period have been grouped and placed opposite the most similar forest unit from the previous two periods, in Table 4, to allow for a more direct comparison between periods.

For the period 1990 – 1995, sixty-five percent of the available harvest area was cut. The 1990 – 1995 TMP had anticipated that wood from the SRF forest would supply the SRF kraft pulp mill. The mill was modernized and did not run at full capacity during the five years 1990-1995. Due to market conditions, the Company maximized its sawlog production to supply its sawmill in Timmins, which had also been upgraded to accept smaller logs. Chips from Timmins and Hearst sawmills were supplied to the Smooth Rock Falls mill for most of its production. Only 10% of the conifer volume harvested on the SRF was delivered in the form of roundwood to the Smooth Rock Falls mill compared to a planned level of 83%.

The planned versus actual white birch harvest area was also low due to the lack of a market for white birch volumes.

During the 1990 to 1995 period no natural depletions were recorded in annual reports for the SRF.

During the 1995 – 2000 period, 81% of the total planned area was harvested. A strike at the Timmins Malette OSB mill and a mill fire that shut down the same facility reduced the area harvested early in the period. Areas with a higher component of aspen had harvest delayed. Additional planned area would have been harvested during the period, however a dispute led to a blockade by First Nations and resulted in area not being harvested in the final year of the TMP. In 1998, a commitment was transferred to the Grant Forest Products OSB mill in Timmins for the low-grade aspen and birch volumes available on the SRF. In 1999, additional aspen veneer (700 m³/year) was committed to the Norbord veneer and plywood mill in Cochrane. As a

result, the actual area harvested within the aspen forest unit increased and was 93% of the planned area.

The planned white birch and actual white birch forest unit harvest area remained low during this period with little change in the demand for white birch volumes.

During the 1995 to 2000 period, 1,045 hectares of natural depletion occurred on the SRF.

During the 2000 – 2005 period, approximately 41% of the total planned area was harvested, (see section 2.3). Demand remained strong for aspen volumes during the period and 89% of the planned aspen forest unit area was harvested. The planned white birch and actual white birch forest unit harvest area remained low during this period with little change in the demand for white birch volumes.

No fire depletions were reported to have occurred on the SRF during the 2000 – 2005 period. Aspen decline was noted by MNR to be affecting many of the aspen stands along the Highway 11 corridor and along the Mattagami River. The 2001 – 2002 annual report listed 10,137 hectares as insect damaged.

2.5 Summary of Managed Productive Forest by Forest Unit

Table 5 provides a summary by forest unit of the managed Crown productive forest for 1990 – 1995, 1995 – 2000 and 2000 – 2005 periods. The source of the information for the 1990 – 1995 and 1995 – 2000 periods was Table 4.8.2 of the respective TMP. Some information is not available for these periods as it was not part of the requirements at that time. Information for the 2000 – 2005 period was taken from Table FMP-9.

The Smooth Rock Falls Forest is a black spruce dominated forest. The available area in black spruce forest units has fluctuated from 225,000 hectares in the 1990 – 1995 period to 250,000 hectares in the 1995 – 2000 period and to 230,000 hectares, (forest units SbCLG, SpINT, SbHs) for the 2000-2005 period. This fluctuation is related to the amount of area surveyed for regeneration success as compared to harvest area and not due to shifts in forest composition. Furthermore during these same periods 90,000, 117,000, and 100,000 hectares respectively were older than 121 years of age.

The second major tree species on the SRF is aspen. The managed productive forest area for the aspen forest units was 17,000, 19,000, and 18,000 hectares in the 1990 – 1995, 1995 – 2000, and 2000 – 2005 periods respectively.

In 2000, a mixed conifer forest unit, MixCo, was developed. This forest unit amalgamated the Red Pine, Jack Pine and Balsam Fir forest units of the previous two periods. In 2000 the MixCo forest unit had 17,072 hectares of available forest. The MixCo forest unit is a mixed unit where black spruce is less than 60% but where the conifer component is over 60% while limiting the amount of larch, cedar, and white spruce that may contribute to overall stand composition. No red pine was harvested during the periods of this analysis nor was any planted. Between 1990 and 2000 several jack pine stands totalling 56 hectares were harvested and no jack pine seedlings were planted. During the 2000 – 2005 FMP 204 hectares were planted with jack pine stock. Therefore the increase in area to 17,072 hectares was due to the criteria of the new forest unit and not a change in red pine, jack pine or balsam fir on the SRF.

White birch forest was summarized in a white birch forest unit in 1990 and 1995 with 2,824 and 3,608 hectares available respectively. In 2000 the available area in the BwPMx forest unit was 2,339 hectares. To be categorized in the BwPMx forest unit the hardwood component of a

stand needed to be at least 60% with more white birch than aspen. It became possible for a stand that was working group white birch to be classified elsewhere, namely the mixed-wood forest unit. Table FMP 2 showed that for the 2000 FMP there were 2,992 hectares of Crown managed white birch working group on the SRF. Fifty-five hectares of BwPMx forest unit were harvested during the 2000 FMP and are being regenerated naturally. Based on the comparison, the area of the white birch forest unit has changed little over the 15 year period.

Cedar and larch dominated stands made up the other conifer forest unit in 1990 with an available area of 710 hectares. In 1995 larch was split from the other conifer forest unit with an available area of 411 hectares. During 1995 the other conifer forest unit was 233 hectares. The combined available area for these forest units was 644 hectares for the 1995 period. In 2000, cedar and larch forest stands had 512 and 802 hectares respectively in Crown managed forest as listed in Table FMP 2. Typical these areas were not planted and were regenerated naturally. During the 2000 FMP Black Spruce was harvested from a combined 49 hectares of Cedar/Larch working group forest. Twenty-two hectares of this area was planted, with white and black spruce because of the suitability of the site for these species. Neither cedar nor larch was utilized on this forest during the periods of this analysis, other than for public collection for building materials or firewood. Larch and cedar left standing on site after the harvest of other species provide adequate seed for regeneration of these working groups and no shift to other conifer forest is expected. Harvest of the spruce component from other conifer stands increases the relative proportion of cedar and larch and has lead in the past to reclassification of the regenerated stands as other conifer.

There was no white spruce forest unit in 1990 as forest stands with a working group of white spruce were grouped with the Spruce forest unit. There were 6,165 hectares of available white spruce forest unit in 1995. According to Table FMP 2 the Crown managed forest contained 4,573 hectares of available white Spruce working group forest at the start of the 2000 FMP. During the 2000 FMP 172 hectares of White Spruce working group forest were harvested of which 127 hectares received artificial regeneration treatment with a blend of white and black spruce seedlings. Planting and tending of these sites will regenerate them to a white spruce future forest condition. The unplanted areas are expected to regenerate naturally to a mixed-wood condition. It appears that the area of white spruce forest unit had declined from earlier levels this trend has been stopped in the 2000-2005 FMP with increased planting of white spruce on the majority of upland fine textured soils.

The MxWd forest unit was created for the 2000 planning period. The mixed condition had not been split out in this way prior to 2000. The MxWd forest unit had a species composition equally split between hardwood and conifer tree species. In 2000 the MxWd forest unit had 21,440 available crown managed hectares. Sites occupied by MxWd stands in the 2000 FMP became excellent candidates for artificial treatments. Most of the sites that were harvested were planted with white and black spruce in varying ratios. Tending of these planted sites is expected to produce a white spruce working group future forest with a component of aspen and black spruce in the free-growing stand. Several small slivers along areas of concern or isolated from other suitable planting area, were left to regenerate naturally to hardwood forest units.

During the 2000 FMP, planting activities increased with emphasis on using white spruce for upland sites. A balance was expected as a result of regeneration treatments on white spruce and mixed-wood sites that would not cause major shifts in the working group composition of the future Smooth Rock Falls Forest.

2.6 Summary of Report of Renewal, Tending and Protection Operations

Table 6 provides a comparison of planned and actual renewal, tending, and protection operations for the three plan periods. The sources of this information are Table 4.19 and Table AR 6.4.1 for the 1990 – 1995 period, Table FMP-25 and Table RPFO-7 for the 1995 – 2000 period, and Table FMP-25 and the annual reports for the 2000-2005 period. Activity levels for the 2004 – 2005 year have been approximated, as they have not yet been reported in an annual report. They have been included to provide a better comparison of actual renewal, tending and protection operations to the planned level.

2.6.1 Natural Regeneration

Natural regeneration for the 1990 – 1995 period fell short of the planned area in the TMP. The 1995 RPFO noted that only 8% of the planned natural regeneration was achieved. Careful logging practices began on the forest during this time and resulted in a decrease in the use of strip and block treatments. Areas that were carefully logged were not reported as natural regeneration projects in annual reports or the RPFO resulting in the under achievement.

Reported levels of natural regeneration for the 1995 – 2000 period increased to 65% of planned levels. The natural regeneration target was not achieved as a result of under-harvesting (81%) of the planned harvest area. The majority of the shortfall in harvest occurred in the spruce forest units where natural regeneration (i.e. careful logging) would have been the preferred method of renewal. The actual area left for natural regeneration was higher, however, this area was not recorded in annual reports.

Natural regeneration levels for the 2000 – 2005 period were forecast to be 72% of the total harvest area whereas actual reported levels of natural regeneration were 41% after 4 years of reporting. The area expected to be reported for natural regeneration in the in the 2004 – 2005 annual report will bring the actual total natural regeneration area to 45% of planned natural regeneration area or approximately 70% of the area harvested.

In all three of the periods examined, the level of natural regeneration reported has fallen below planned levels. The shortfall can be attributed to the under harvest in all three periods and also a lack of reporting areas left for natural regeneration. The level of reporting natural regeneration has however improved over time.

2.6.2 Artificial Regeneration

During the 1990 – 1995 period, 75% of the planned levels of artificial regeneration (planting and seeding) were achieved. Tree planting levels were 90% of planned levels. Seeding levels were 34% of planned levels because older cuts (i.e. areas harvested prior to 1990) were planned for seeding but were not treated. Seeding treatments were carried out on recent cuts. Given that harvest levels were 65% of that planned, this level of artificial regeneration was an over achievement. Treatment was applied to sites that would benefit most from the investment, such as sites of higher productivity and those with good access.

During the 1995 – 2000 period, 45% of the planned levels of artificial regeneration (planting and seeding) were achieved. Tree planting levels were 58% of planned levels and none of the planned seeding treatments took place. Actual levels of artificial regeneration were more than 32% lower in the 1995 – 2000 period than the 1990 to 1995 period even though the total harvest area increased by more than 35%. Many of the renewal targets set for the 1995 – 2000 period

were not achieved. During this period, the majority of the logging (road construction and harvesting) took place during the winter months. As a result, many of the harvest blocks were difficult to access during summer months. Roads constructed during the summer months were also constructed to a lower standard, which further limited access for renewal activities. The Company focused more of its efforts on lower cost natural regeneration options (i.e. careful logging). To a lesser degree, the transfer of responsibility for forest renewal from the Crown to the Company in 1995 upon the signing of the SFL agreement also reduced the level of artificial regeneration work on the forest during this period. Company staff had not been directly involved in the renewal work on the forest and therefore time was needed to familiarize themselves with the forest and the areas requiring renewal work. Contracts for regeneration work also had to be developed and signed with qualified silviculture contractors to carryout the work (i.e. tree growing, tree planting, tending).

During the 2000 – 2005 period, 88% of the planned levels of artificial regeneration (planting and seeding) were achieved. Tree planting levels were 70% of planned levels and although no seeding treatments were planned, 630 hectares were aerially seeded accounting for the remaining 18%. Over 4.6 million seedlings, or 90% of the seedlings planned, were planted during this period. Given the lower than planned harvest levels (see Section 2.4) this level is an over achievement of the target set in the FMP. Given that 70% of the forecast area was planted with 90% of the forecast seedlings, better than anticipated densities were achieved. Although no aerial seeding was planned, seeding treatments were used to increase stocking levels on selected sites. Actual levels of artificial regeneration were more than 70% higher in the 2000 – 2005 period than the 1995 to 2000 period even though the total harvest area decreased by more than 50%.

The levels of artificial regeneration achieved during this period indicate a renewed commitment to renewal work on the SRF.

2.6.3 Site Preparation

Table 6 shows an achievement level of 42% for site preparation during the 1990 – 1995 period. Limited funding was identified in the RPFO as the key factor for the shortfall. Mechanical site preparation did reach 74% of the planned level. The remainder of the shortfall was due to none of the planned prescribed fire or chemical site preparation treatments taking place on the forest.

During the 1995 – 2000 period, only mechanical site preparation treatments were planned. Of the 3,645 hectares planned for site preparation only 10% or 295 hectares of chemical site preparation were completed. The large under achievement can be attributed to limited access opportunities for tree planting and a change in management approaches. The emphasis was shifted away from heavy mechanical site preparation treatments (higher cost treatment) to a careful logging (lower cost) approach where efforts are directed at protecting advance regeneration. The use of careful logging prohibited the use of shear blading on many sites.

For the 2000 – 2005 period only mechanical site preparation was planned in the FMP and at less than one-third of previous levels. Total achievement of site preparation was almost 100% of the 1,075 hectare planned level with chemical and prescribed fire (i.e. slash piling and pile burning) contributing to roughly 40% of the total. Although no chemical site preparation was planned, 252 hectares were chemically site prepared. Chemical site preparation was used as the preferred treatment option, rather than mechanical site preparation, to remove woody competition and increase planting chance in an effort to minimize site disturbance while still providing a suitable microsite.

Over the three periods analyzed, the level of planned site preparation has steadily declined as careful logging practices have improved, resulting in spruce areas either being left for natural regeneration or in-fill planted to supplement natural seedlings already on-site. Although chemical site preparation treatments were planned in the 1990 – 1995 period, no chemical site preparation was actually done on the forest until the 1995 to 2000 period. This form of site preparation treatment will likely be used more often going forward as an effective means of controlling woody competition while minimizing site disturbance. Although not traditionally thought of as site preparation, slash pile burning and other forms of slash management will be planned for and reported as site preparation in the future.

2.6.4 Tending

Planned aerial tending levels have remained relatively constant over the three periods of this analysis at approximately 4,300 hectares. Achievement for the 1990 – 1995 period was 87% (3,968 ha) of the planned level (4,550 ha). In the 1995 – 2000 period achievement was 134% (5,676 ha) of the planned level (4,221 ha). During the 1995 – 2000 period actual tending levels exceeded planned tending levels as a result of efforts being made to treat MNR plantation areas established in the early 1980's and ensure they could eventually be declared as free-to-grow. This is an example of Tembec meeting its obligations on X, Y, and Z lands under its Sustainable Forest Licence.

In the 2000 – 2005 period achievement was 89% (3,871 ha) of the planned level (4,353 ha).

The 2000-2005 period is the only one of the three periods in this analysis where ground tending treatments were planned. Approximately 25% of the planned area was treated.

As in the past, future tending levels are not expected to either increase or decline significantly unless alternative low cost tending options are developed that will ensure the successful regeneration of conifer sites.

2.7 Summary of Harvest Area Successfully Regenerated

Table 7 was produced using values obtained from digital harvest depletion records for the 1990-1995 period. Tembec Industries Inc. maintains digital data on regeneration success in a geographic information system. There are 27 hectares less depletion in this table than the Table 4 value for the 1990-1995 period as a result. Re-digitizing of past depletions using new photography caused this as an affect of including previously ignored insular residual within the depletion boundary, particularly in Alexandra Township.

Of the 12,008 hectares depleted by harvest between 1990 and 1995, 11,599 hectares have been surveyed. Seventy-two percent or 8,372 hectares of this area is Free To Grow (FTG) and 28% or 3,227 hectares remains Not Sufficiently Regenerated (NSR). The majority of these assessments were conducted between 2003 and 2005. Of the 3,227 hectares currently listed as NSR, 1,570 hectares require tending to remove competing brushy competition, 995 hectares require in-fill planting to increase stocking levels and tending to control competition, 265 hectares require that regeneration activities start from scratch, no area is classed in the most expensive treatment category, and 400 hectares meet stocking criteria but require 1 to 2 additional growing seasons to reach the minimum height standards. 2,035 hectares of the NSR total were assessed prior to the tenth year following harvest. Of those sites that are FTG, the stocking level of the new forest is on average higher than the average for the entire forest. Stocking levels have, on average, increased by more than 10% with the exception of the aspen, cedar and larch working groups whose stocking levels have increased by less than 10%.

Of the NSR area that requires tending 860 hectares have already received a tending treatment. To date, 206 hectares of the identified area requiring in-fill planting have been treated. The 400 hectares that have been assessed as requiring additional growing seasons to meet regeneration standards are still within the timeframe allowed in the 1995 – 2000 FMP under which they were harvested. In the 1995 – 2000 plan, poorer sites were expected to require 15 years of growth following harvest to achieve regeneration standards. Tembec Industries Inc. now widely applies the principles of careful logging to preserve advance growth that exists on these sites at the time of harvest, in order to return sites to the productive landbase sooner.

Of the 409 hectares not surveyed:

- 56 hectares are silvers less than 0.2 hectares between assessment and depletion boundaries.
- 32 hectares were not depleted and were corrected for the 2005 plan FRI.
- 252 hectares are non-productive forest, i.e. alder swales, included in original depletion shapes.
- 19 hectares were depleted prior to 1990 and were corrected for the 2005 plan FRI, and
- 50 hectares were depleted and have not yet been assessed.

The 2000 Independent Forest Audit (IFA) report noted that over 40,000 hectares of backlog existed on the forest at the time of the audit and it was unclear whether or not renewal and maintenance objectives were being met. As a result the auditors recommended that the company conduct the necessary FTG surveys to determine the regeneration status of the backlog area. In response to the audit recommendation, Tembec initiated an extensive FTG survey program. Between 2001 and 2004, 49,689 hectares were surveyed. More than half of this area was surveyed in time to provide data for the development of the 2005-2010 FMP. The 2000 to 2005 FMP included a FTG survey target of 7,600 hectares. The target was based on treated areas that could have potentially been surveyed within the five-year term of the FMP. The area included stands that had been harvested and renewed using the forest unit descriptions and silvicultural ground rules contained within the 1995 – 2000 Smooth Rock FMP. The FTG survey data collected by Tembec during the 2000 to 2004 period significantly reduced the amount of backlog area on the forest. The data collected also vastly improved the quality of the forest resource inventory and particularly the status of renewal on the SRF. The survey data collected was used for the development of key assumptions for strategic wood supply modeling in preparation of the 2005 – 2010 SRF FMP.

During the 1990 – 1995 period, Forest Operations Prescriptions (FOP)'s were not formalized as a pre-harvest process as they now are under current practices. The general approach to renewal of the forest was to examine the area after harvest and prescribe a set of treatments that would establish a new forest. Often, the treatment involved increasing the component of conifer on all but the hardwood sites that were expected to regenerate to aspen dominated stands. It is therefore difficult to draw any conclusion regarding trends of forest unit conversions during this period other than to say that mixed forest conditions were generally moved, through active or passive treatments, to either more pure conifer or hardwood forest types.

Post harvest alder competition on moist black spruce sites has been an issue that has been dealt with through the use of herbicides. Recent attention to reducing site disturbance during the frost-free and early winter season is anticipated to reduce the need for tending treatments on natural regeneration sites. In conjunction with improvements to careful logging operations, reduced site disturbance will reduce the lag time required for wetter sites to reach a FTG status.

3.0 Summary

This analysis discusses progress toward the achievement of management objectives during the period 1990 to 2005. An integral part of adaptive management is the linkage between successive planning periods. This trend analysis of planned and actual activities illustrates important instances where objectives were surpassed and highlights areas where continued development or attention is needed.

Tembec Industries Inc. has over the five years between 2000 and 2005 made a sound effort with regard to removing data inaccuracies, incorporating existing silviculture data, and reducing backlog area on the Smooth Rock Falls Forest by surveying 49,698 hectares. As a result, the inventory is in the best possible condition given the vintage of the original information.

Tembec adopted, in 2000, a new series of forest units at the direction of the MNR. These new units promoted a science based silviculture program, by facilitating tracking of Silviculture practices on forest sites that relate to the forest ecosystem classification of eastern Ontario. Therefore, future decisions on regeneration treatment can be based on specific site characteristics, such as soil texture, and past results on similar sites. Use of free-growing results in conjunction with pre-harvest forest unit and silviculture treatments supported the formulation of the post renewal succession used in the SFMM for the 2005 FMP and led to an approach that balances the regeneration of the forest and fluctuations between forest types.

Available conifer volumes have declined by 23% from the level available in 1990 TMP and aspen volumes have increased more than 44% over the same period. White birch volumes have seen low levels of utilization over the 15 year period.

Shifting mill requirements due to down time caused by mill upgrades and the most devastating economic conditions have reduced demand for conifer fibre from this forest. Continued challenges with First Nations reduced harvest levels further. As a result, only 41% of the 2000 – 2005 planned harvest area was depleted.

Artificial regeneration levels on the Smooth Rock Falls Forest for 2000 – 2005 increased by 70% over the 1995 – 2000 period. Tembec has clearly demonstrated its commitment to regeneration on the SRF.

With the exception of only 50 hectares, all of the area harvested between 1990 and 1995 has been assessed for regeneration success. Once those areas that require tending are treated, and the less productive sites reach the required height, 89% regeneration success will have been achieved on the SRF.

Several quantitative objectives of the 2000-2005 SRF FMP highlighted the Tembec commitment to stewardship of the forest entrusted to its forest managers. These objectives were based on the Canadian Council of Forest Ministers, "Defining Sustainable Forest Management, A Canadian Approach to Criteria and Indicators". A review of these objectives sets the stage for Tembec Industries Inc. management approach going forward.

Objective II (2) of the 2000 FMP was to keep forest ecosystems productive. The target for this objective is to move toward maintaining a maximum of fifteen years of disturbance area in unproductive forests (NSR).

Silviculture ground rules were developed and followed in the application of site-specific regeneration techniques to renew the forest. The careful logging program on the SRF was

enhanced with both pre-harvest and post-harvest assessments of the advance regeneration on site. The operational application of careful logging was monitored with the measurement of leave trail width and cut strip width and operational checklists. An annual program of free growing assessment was conducted and the results of the regeneration success reported in annual reports.

Achievement of this objective is confirmed. By the end of the fourth year of the 2000 – 2005 period there had been 20,197 hectares declared free-growing. More than 21,000 additional hectares were found to be free-growing in the final year. These assessments will have reduced the area defined as unproductive forest to 26,713 hectares by March 31st, 2005 not including the harvest depletion for 2004 – 2005. The area disturbed since 1990, not including the harvest for 2004 – 2005, is 36,562 hectares. Therefore the target to move toward maintaining a maximum of fifteen years of disturbance area in unproductive forest was met and exceeded.

Objective IV of the 2000 FMP was to ensure that the forest is protected from sustained deforestation or conversion to other uses and to ensure that a balance is maintained between utilization and rejuvenation. The target was to maximize the total Crown productive forest.

The SFMM was used to set sustainable harvest and renewal targets. The ground rules for regeneration were applied to the areas harvested in a manner that would effectively regenerate the forest. The physical environment guidelines were followed, particularly when harvest operations took place on sensitive sites. Harvest occurred in the winter where necessary and equipment with low ground pressure was used in the frost-free season to minimize soil disturbance.

Regeneration and assessment of regeneration success of past practices increased the Crown productive landbase from 2000 to 2005 by 41,411 hectares. Past regeneration practices have already effectively regenerated 83% of past harvest sites. Therefore the SRF is not being deforested or converted to other uses and the total Crown productive forest is being maximized.

Objective V (1) was to supply industrial and consumer wood needs while maintaining forest sustainability and to realize a predictable, continuous, and consistent flow of roundwood from the Smooth Rock Falls. The targets were: 300,000 m³ of Spruce/Pine/Fir per year; 20,000 m³ of non-veneer poplar per year; 1,200 m³ of poplar veneer per year; and to maximize harvest area.

Conifer roundwood was sent to Tembec sawmills in Cochrane and Timmins. Aspen of OSB grade was sent to Grant Forest Products mills in Timmins and Englehart. Norbord's veneer/plywood mill in Cochrane received aspen veneer. Roundwood and chips were delivered to the Tembec kraft pulp mill in the town of Smooth Rock Falls and to the Abitibi paper mill in Iroquois Falls. The SFMM was used to model the area available for harvest while achieving objectives and targets established for a range of non-timber values. Harvest area was available to local contractors and their employees outside of the winter only period. Harvesting occurred in the spring, summer and fall on suitable sites as indicated by improved forest units used in the planning process.

The target of 300,000 m³ Spruce/Pine/Fir per year was not achieved in the modeling and was not available for harvest. The volume that was available in the model (246,853 m³) was not fully harvested over the 2000 – 2005 term, nor was the planned volume (240,030 m³). The target of 20,000 m³ of poplar per year was also not achieved. Naturally caused aspen decline reduced the volume on several of the planned harvest areas. Incidental aspen within allocations was not realized due to logistical challenges and the underachievement of the conifer harvest.

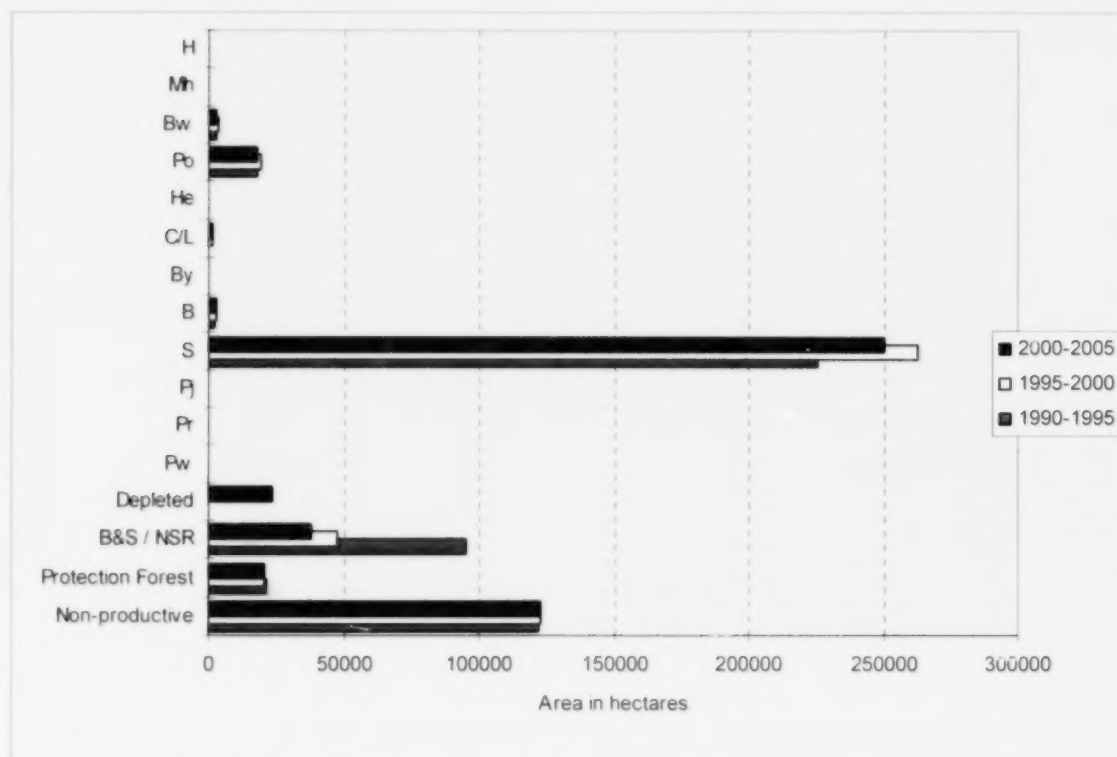
Tembec Industries is exceeding its renewal objectives on the Smooth Rock Falls Forest and increasing its knowledge of the landbase. The FMP for the period 2005-2010 builds on much of the knowledge and understanding gleaned from past management periods. Continually increasing constraints on the use of the resources of the Smooth Rock Falls Forest will necessitate continual improvement with respect to the achievement of objectives setout in future FMP's.

2005 Independent Forest Audit
Table 1 – Summary of Total Area Under Management
MU: Smooth Rock Falls Forest

Past and Current Plans – Crown Managed

Land Type	Plan Term	Area in hectares		
		Past Plans		Current
		1990-1995	1995-2000	2000-2005
Non-Forested				
Other Land		2,906	3,728	3,728
Forested				
Non-productive		121,841	122,661	122,777
Productive				
Protection		21,434	20,551	20,533
Production Forest				
B&S / NSR		95,013	47,356	37,630
Depleted		-	-	23,292
Forest Stands by Working Group				
Pw		-	-	-
Pr		24	24	24
Pj		620	825	734
S		225,826	262,526	250,643
B		2,383	2,770	2,626
By		-	-	-
C/L		710	1,231	1,528
He		-	-	-
Po		17,616	19,275	17,756
Bw		2,824	3,608	2,992
Mh		-	-	-
H		-	-	-
Total Production Forest		345,016	337,615	337,025
Total Forested Land		488,291	480,827	480,535

Comparison and Trend Analysis of Planned versus Actual Forest Operations



Source: TMP Table 4.8.2 (1990-1995, 1995-2000)
FMP Table FMP-1 (2000-2005)

2005 Independent Forest Audit

Table 2 – Description of Forest Units (TMP 4.11) 1990-1995

MU: Smooth Rock Falls Forest

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
Jack Pine	Pj, Pr, Pw	Conifer	Pj		Clearcut	Working group Jack Pine and Red Pine	
Spruce 1	Sb (sc x, 1, 2) Sw	Conifer	Sp		Clearcut	Working group Spruce SC X, 1 and 2	
Spruce 2	Sb (sc 3)	Conifer	Sp		Clearcut	Working group Spruce SC 3	
Balsam fir		Conifer	Bf		Clearcut	Working group Balsam Fir	
Other Conifer	L, Ce	Conifer	Oc		Clearcut	Working group Larch and Cedar	
Poplar		Inthwd	Po		Clearcut	Working group Poplar	
White Birch	Bw, By	Inthwd	Bw		Clearcut	Working group White Birch	

Table 2 – Description of Forest Units (TMP 4.11) 1995-2000

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
Pine	Pj, Pr, Pw	Conifer	Pj		Clearcut/CLAG	Working group Jack Pine and Red Pine	
Spruce 1	Sb (sc x, 1, 2)	Conifer	Sp		Clearcut/CLAG	Working group Spruce SC X, 1 and 2	
Spruce 2	Sb (sc 3)	Conifer	Sp		Clearcut/CLAG	Working group Spruce SC 3	
Balsam fir		Conifer	Bf		Clearcut/CLAG	Working group Balsam Fir	
Other Conifer	L, Ce, Oc	Conifer	Oc		Clearcut/CLAG	Working group Larch and Cedar	
Poplar		Inthwd	Po		Clearcut/CLAG	Working group Poplar	
Birch		Inthwd	Bw		Clearcut/CLAG	Working group White birch	

Table 2 – Description of Forest Units (FMP-8) 2000-2005

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
SpUPL	Upland Spruce	Conifer	Black White Spruce	9, 6	Clearcut	$Sb + Sw \geq 0.6$, $Sw < 0.1$ $Sc = X$, 1 or $Wg = Sw$	$Sw4Sb3Po1Bf1Bw1$ $SC = 0.7$
SbCLG	Spruce Careful Logging	Conifer	Black Spruce	11, 14	Clearcut	$Sb \geq 0.6$ $SC = 2, 3, 4$ $Stk \leq 0.6$	$Sb10$, $SC = 1.9$
SbHS	Spruce Hi Stocking	Conifer	Black Spruce	11	Clearcut	$Sb \geq 0.6$, $SC = 2, 3, 4$ $Stk > 0.6$	$Sb10$, $SC = 2.1$
SpINT	Spruce Intermediate	Conifer	Black Spruce	11, 8	Clearcut	$Sb \geq 0.8$, $SC = X, 1$	$Sb10$, $SC = 0.9$
PoPur	Poplar	Hardwood	Poplar	10, 7	Clearcut	$Po > 0.6$	$Po8Sb1Sw1$ $SC = 2.0$
MixCo	Mixed Conifer	Conifer	Black Spruce	9, 12	Clearcut	$Pr+Sb+Sw+Pj+Bf+Ce+La \geq 0.6$ and $Po+Bw < 0.3$	$Sb5Bf2Po1La1Sw1$ $SC = 1.4$
PoMx	Poplar Mixed	Hardwood	Poplar	6, 10	Clearcut	$Po+Bw > 0.6$ and $Po+Bw$	$Po5Sb2Bf1Bw1Sw1$ $SC = 2.1$
MxWd	Mixedwood	Conifer / Hardwood	Black Spruce / Poplar	6	Clearcut	$Po+Bw \leq 0.5$	$Sb4Po3Bw2Bf1$ $SC = 1.1$
Ocon	Other Conifer	Conifer	Cedar / Larch	12, 13	Clearcut	$Ce+La > 0.5$ $WG=OC$, Ce , La	$Sb4La4Ce2$, $SC = 1.9$
BwPMX	White Birch Mixed	Hardwood	White Birch	6, 7	Clearcut	$Bw = Po > 0.6$, $Bw > Po$	$Bw5Po2Sb1Bf1Sw1$ $SC = 1.4$

Sources: TMP Table 4.11 (1990-1995, 1995-2000); FMP Table FMP-8 (2000-2005)

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Table 3 – Summary of Planned & Actual Harvest Volumes

MU: Smooth Rock Falls Forest

Average Planned Annual Harvest Volumes

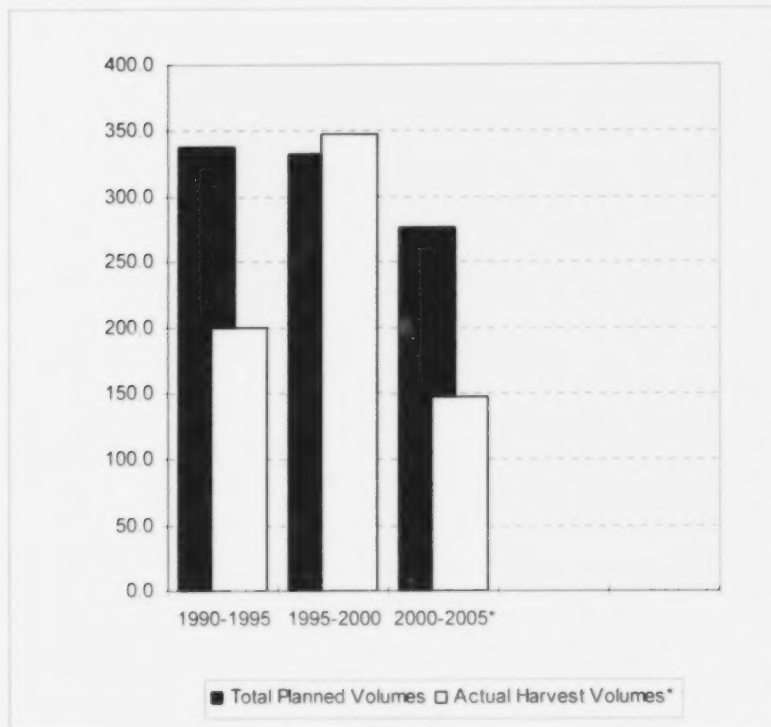
Volumes are Annualized for the indicated 5 year period

Species	Volume in '000's cubic metres		
	Past Plans		Current
	1990-1995	1995-2000	2000-2005
Jack Pine	319	1,559	289
Spruce	307,207	276,000	234,748
Balsam Fir	4,104	9,031	4,993
Other Conifer	4,970	3,274	7,147
Aspen	18,456	35,812	26,574
White Birch	3,058	6,696	3,162
Total Planned Volumes	338,114	332,372	276,913

Actual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

Species	Volume in '000's cubic metres		
	Past Plans		Current*
	1990-1995	1995-2000	2000-2005
Jack Pine	671	1,534	89
Spruce	186,958	290,552	129,083
Balsam Fir	8,446	11,636	3,312
Other Conifer	35	0	254
Aspen	2,420	43,553	14,309
White Birch	0	28	148
Other Hardwood	105		
Total Actual Volumes	198,634	347,303	147,195



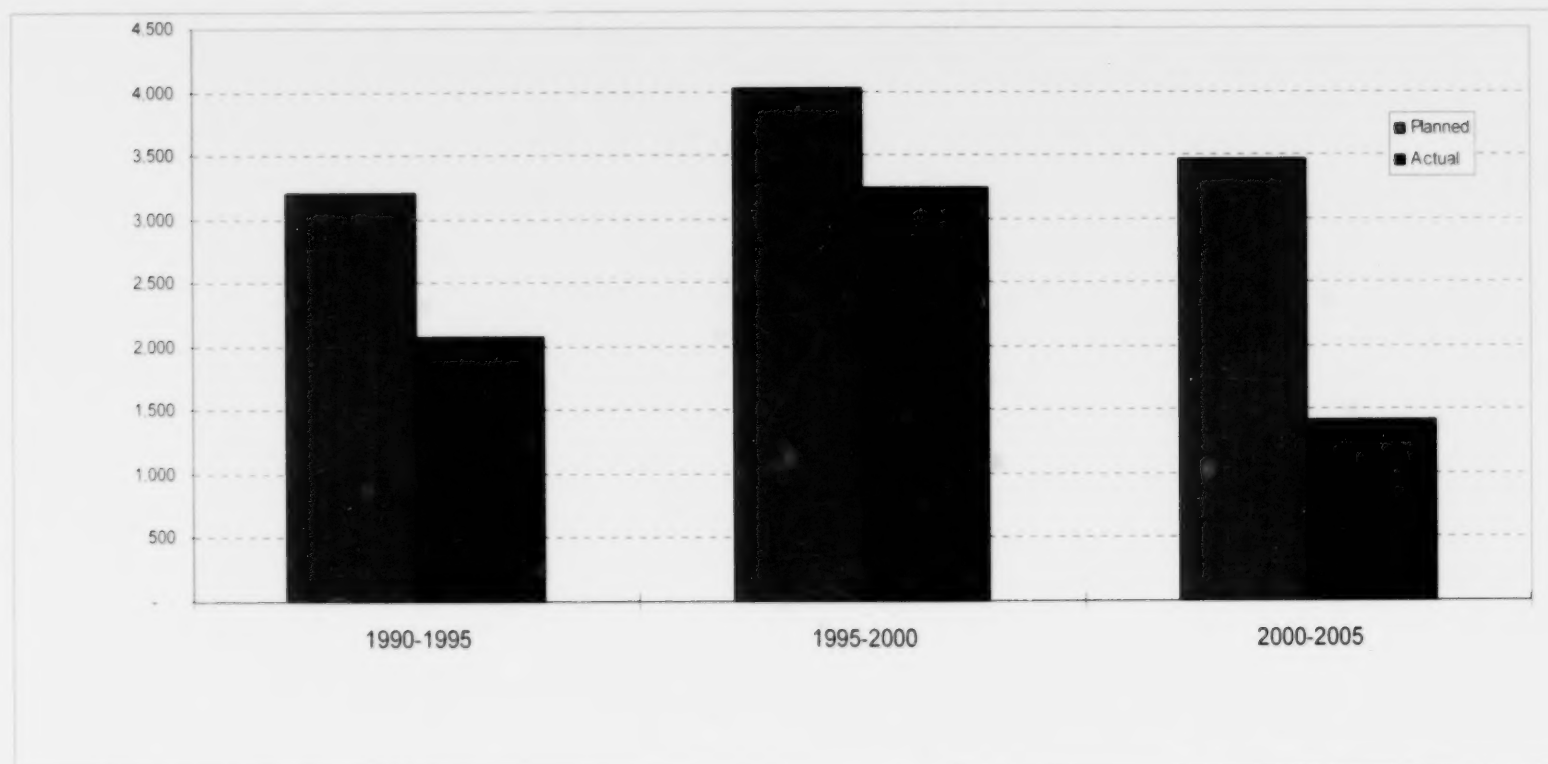
Source: planned: TMP Table 4.18.1 (1990-1995, 1995-2000)
FMP Table FMP-21 (2000-2005)
Actual: TMP AR-Table 6.3.1 (1990-1995)
FMP RPFO-4 (1995-2000)
AR-5 (2000-2005)
*volumes based on first four years of harvest

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 Table 4 – Summary of Planned & Actual Depletion Area
 MU: Smooth Rock Falls Forest

Past and Current Plans

Planned Annual Harvest Area					Actual Depletion Area							
	Area in hectares				Area in hectares							
	Past Plans		Current			Past Plans				Current		
Plan Term	1990-1995	1995-2000		2000-2005	1990-1995		1995-2000			2000-2005*		
Forest Unit		New Forest Units			Harvest	Natural	Harvest	Natural	New Forest Unit	Harvest	Natural	
Spruce 1	2,827	3,174	SbINT, SpU	791	1,912		2,579	135	SbINT, SpU	365		
Spruce 2	297	224	SbCLG, Sb	2,282	123		137	34	SbCLG, Sb	732		
Spruce 4					20							
Jack Pine	3	12	MixCo	66	3		8	-	MixCo	33		
Poplar	73	473	PoPur, PoM	307	20		441	36	PoPur, PoM	266		
White Birch	5	90	BwPMX	11	2		50	1	BwPMX	10		
OC		10	Ocon	9	-		16		Ocon	9		
Balsam Fir		37			-		15	3				
					-							
Total Area	3,205	4,020		3,466	2,080	-	3,246	209		1,415	-	

* 2000-2005 term first four years of harvest annualized

Planned vs. Actual Harvest Area

Source: planned: TMP Table 4.15 (1990-1995, 1995-2000); FMP Table FMP-18 (2000-2005)
Actual: AR 6.1 (1990-1995), FMP Table RPFO-2 (1995-2000), AR Table 2 (2000-2005)
* area based on first four years of harvest

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Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (2000-2005)

MU: Smooth Rock Falls Forest

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PoPur	1-20	10		40			1,373	
	21-40			23	536		286	6,822
	41-60			19	1,818		339	33,534
	61-80			123	19,309		1,961	307,817
	81-100			225	39,100		3,130	542,850
	101-120			76	12,200		907	147,179
	121-140	5	135	47	3,037		506	31,654
	141-160							
	161-180			2	30		3	45
	181-200							
	200+							
	Forest Unit Subtotal	15	135	555	76,030	0	8,505	1,069,901

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Ocon	1-20			7			521	
	21-40			25			1,958	
	41-60			22	12		2,158	852
	61-80			2	40		109	2,432
	81-100						37	1,628
	101-120	36	1,944	3	162		200	10,800
	121-140	93	4,677	3	153		184	9,304
	141-160	47	2,021	5	235		202	9,022
	161-180	198	8,118				95	3,895
	181-200			5	160		6	192
	200+							
	Forest Unit Subtotal	374	16,760	72	762	0	5,470	38,125

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (2000-2005) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PoMix	1-20			16			730	
	21-40	5	50	69	1,131		1,418	21,656
	41-60	8	392	125	7,757		2,778	162,744
	61-80			95	9,115		1,505	144,880
	81-100			96	10,771		1,916	216,361
	101-120			105	10,884		1,031	108,634
	121-140			143	7,962		822	46,083
	141-160			5	110		21	462
	161-180							
	181-200							
	200+							
Forest Unit Subtotal		13	442	654	47,730	0	10,221	700,820

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
MxWd	1-20			33			1,412	
	21-40			81	1,646		3,942	80,422
	41-60			126	7,686		3,476	213,018
	61-80	16	1,408	186	17,551		3,883	365,052
	81-100			145	16,027		3,292	364,129
	101-120			134	13,162		2,065	199,037
	121-140			498	27,953		2,907	159,660
	141-160			40	1,840		308	14,168
	161-180			8	336		125	5,250
	181-200			13			30	
	200+							
Forest Unit Subtotal		16	1,408	1,264	86,201	0	21,440	1,400,736

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (2000-2005) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SbCLG	1-20	93		892			25,670	
	21-40			848	327		13,413	8,581
	41-60	153	591	497	914		12,960	22,461
	61-80	230	6,768	491	16,290		6,775	217,494
	81-100	322	19,824	378	23,268		11,014	671,748
	101-120	1,336	86,840	301	19,565		9,374	609,310
	121-140	6,938	417,150	1,512	90,672		37,573	2,263,399
	141-160	8,313	442,890	1,810	97,552		24,456	1,316,247
	161-180	2,221	106,264	75	3,572		3,198	152,780
	181-200	48	1,920	12	472		215	8,324
	200+							
Forest Unit Subtotal		19,654	1,082,247	6,816	252,632	0	144,648	5,270,344

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SbHs	1-20			33			1,094	
	21-40			105	137		3,273	4,745
	41-60	8	72	90	405		1,878	9,447
	61-80			51	3,168		804	50,022
	81-100	13	1,274	112	11,796		3,233	337,984
	101-120	36	3,888	49	5,364		1,994	217,902
	121-140	32	3,089	331	33,419		5,522	549,314
	141-160	159	13,779	30	2,670		1,192	105,124
	161-180	133	10,640	11	838		276	21,793
	181-200						19	1,121
	200+							
Forest Unit Subtotal		381	32,742	812	57,797	0	19,285	1,297,452

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (2000-2005) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
MixCo	1-20			38			1,897	
	21-40			872	9,686		6,782	50,942
	41-60			2,017	48,696		2,705	74,592
	61-80			91	5,296		1,319	77,024
	81-100	19	1,387	125	9,421		1,077	81,331
	101-120			104	8,346		904	71,090
	121-140			287	16,288		1,375	79,290
	141-160			86	3,975		900	41,772
	161-180			19	792		73	3,052
	181-200			14	508		40	1,444
	200+							
Forest Unit Subtotal		19	1,387	3,653	103,008	0	17,072	480,537

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SpINT	1-20			1,408			19,491	
	21-40			259	1,520		4,732	36,000
	41-60			44	2,898		1,970	116,501
	61-80			216	23,120		2,790	301,944
	81-100			554	71,330		10,335	1,330,115
	101-120			433	56,514		6,633	867,633
	121-140			1,273	153,147		13,046	1,563,786
	141-160			2,033	225,235		14,313	1,579,127
	161-180			20	2,010		953	96,708
	181-200			8	721		118	10,631
	200+							
Forest Unit Subtotal		0	0	6,248	536,495	0	74,381	5,902,445

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (2000-2005) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
BwPmx	1-20			7			318	
	21-40			3	72		414	9,936
	41-60			13	738		537	28,106
	61-80			29	2,263		816	60,984
	81-100			11	994		142	12,892
	101-120	32	2,976	1	93		36	3,348
	121-140			1	60		76	3,930
	141-160							
	161-180							
	181-200							
	200+							
Forest Unit Subtotal		32	2,976	65	4,220	0	2,339	119,196

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SpUPL	1-20			40			1,430	
	21-40			63	1,290		433	7,494
	41-60			43	2,094		770	37,928
	61-80			177	15,156		1,484	126,025
	81-100			186	20,716		1,822	205,276
	101-120			535	63,460		2,126	252,156
	121-140			750	76,145		3,308	335,754
	141-160			82	7,366		464	42,008
	161-180	29	2,465				12	1,020
	181-200							
	200+							
Forest Unit Subtotal		29	2,465	1,876	186,227	0	11,849	1,007,661
Total		20,533	1,140,562	22,015	1,351,102	0	315,210	17,287,217

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Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (1995-2000)

MU: Smooth Rock Falls Forest

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Black Spruce	1-20						16,393	
	21-40						28,301	
	41-60						23,633	
	61-80						10,035	
	81-100						31,660	
	101-120						21,194	
	121-140						68,077	
	141-160						45,878	
	161-180						4,382	
	181-200						283	
	200+						11	
Forest Unit Subtotal		20,104	0	45,301	0	0	249,847	0

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
White Spruce	1-20						333	
	21-40						271	
	41-60						880	
	61-80						642	
	81-100						1,129	
	101-120						1,270	
	121-140						1,552	
	141-160						88	
	161-180							
	181-200							
	200+							
Forest Unit Subtotal		29	0	763	-	0	6,165	-

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (1995-2000) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Spruce All	1-20						44	
	21-40						261	
	41-60						883	
	61-80						1,481	
	81-100						1,325	
	101-120						2,120	
	121-140						280	
	141-160						67	
	161-180						53	
	181-200							
	200+							
Forest Unit Subtotal		111	0	80	-	0	6,514	-

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Poplar	1-20						1,787	
	21-40						888	
	41-60						3,609	
	61-80						4,755	
	81-100						4,502	
	101-120						2,105	
	121-140						1,598	
	141-160						26	
	161-180						5	
	181-200							
	200+							
Forest Unit Subtotal		44	0	615	-	0	19,275	-

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (1995-2000) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Jack Pine	1-20						161	
	21-40						27	
	41-60						152	
	61-80						179	
	81-100						91	
	101-120						48	
	121-140						167	
	141-160							
	161-180							
	181-200							
	200+							
Forest Unit Subtotal		0	0	56	-	0	825	-

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Red Pine	1-20							
	21-40							
	41-60							
	61-80							
	81-100							
	101-120							
	121-140							
	141-160							
	161-180						24	
	181-200							
	200+							
Forest Unit Subtotal		0	0	0	-	0	24	-

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (1995-2000) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
White Birch	1-20							
	21-40						760	
	41-60						1,198	
	61-80						1,308	
	81-100						229	
	101-120						36	
	121-140						77	
	141-160							
	161-180							
	181-200							
	200+							
Forest Unit Subtotal		32	0	325	-	0	3,608	-

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Larch	1-20						186	
	21-40						43	
	41-60						55	
	61-80						10	
	81-100						12	
	101-120						66	
	121-140						18	
	141-160						10	
	161-180						11	
	181-200							
	200+							
Forest Unit Subtotal		212	0	105	-	0	411	-

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (1995-2000) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Other Conifer	1-20							
	21-40							
	41-60						36	
	61-80							
	81-100							
	101-120						51	
	121-140						76	
	141-160						31	
	161-180						39	
	181-200							
	200+							
Forest Unit Subtotal		0	0	0	-	0	233	-
Total		20,532	0	47,245	0	0	286,902	0

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Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (1990-1995)

MU: Smooth Rock Falls Forest

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Spruce	1-20							
	21-40						3,250	
	41-60						15,612	
	61-80						29,523	
	81-100						26,054	
	101-120						61,045	
	121 +						90,342	
Forest Unit Subtotal		21,045	0	91,211	0	0	225,826	-

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Poplar	1-20						74	
	21-40						2,971	
	41-60						3,996	
	61-80						5,620	
	81-100						2,024	
	101-120						2,296	
	121 +						35	
Forest Unit Subtotal		0	0	2,333	0	0	17,616	-

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (1990-1995) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Jack Pine	1-20							
	21-40						104	
	41-60						302	
	61-80						94	
	81-100						58	
	101-120						62	
	121 +							
Forest Unit Subtotal		0	0	128	-	0	620	-

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Red Pine	1-20							
	21-40							
	41-60							
	61-80							
	81-100							
	101-120							
	121 +						24	
Forest Unit Subtotal		0	0	0	-	0	24	-

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (1990-1995) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
White Birch	1-20							
	21-40						1,001	
	41-60						1,463	
	61-80						211	
	81-100						70	
	101-120						79	
	121 +							
Forest Unit Subtotal		33	0	953	-	0	2,824	-

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Balsam Fir	1-20							
	21-40						202	
	41-60						1,216	
	61-80						625	
	81-100						340	
	101-120							
	121 +							
Forest Unit Subtotal		22	0	178	-	0	2,383	-

Table 5 – Summary of Managed Productive Forest by Forest Unit, FMP-9 (1990-1995) continued

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Other Conifer	1-20						11	
	21-40						61	
	41-60							
	61-80							
	81-100						179	
	101-120						221	
	121 +						238	
Forest Unit Subtotal		334	0	210	-	0	710	-
Total		21,434	0	95,013	0	0	250,003	0

2005 Independent Forest Audit

Table 6 – Summary Report of Renewal, Tending and Protection Operations (RPFO-7)

MU: Smooth Rock Falls Forest

	Area Summary of all Forest Units (ha)					
	1990-1995		1995-2000		2000-2005	
	Planned	Actual	Planned	Actual	Planned	Actual*
Renewal						
Regeneration						
Uneven-Aged Management						
Selection Cut - Harvest						
Total Uneven-Aged Management						
Even-Aged Management						
Natural Regeneration						
Clearcut	8527	427	14672	9488	12442	5549
Strip Cut	885	339				
Seed Tree Cut						
Uniform Shelterwood Seed Cut						
Subtotal Natural	9412	766	14672	9488	12442	5549
Artificial Regeneration						
Planting	3536	3179	4221	2453	4881	3300
Seeding direct			1205			630
Seeding with site preparation	1300	440				
Scarification						
Subtotal Artificial	4836	3619	5426	2453	4881	4020
Total Even-Aged Management	14248	4385	20098	11941	17323	9569
Total Regeneration	14248	4385	20098	11941	17323	9569
Site Preparation						
Mechanical	3900	2007	3645		1075	610
Chemical	1750			295		252
Prescribed Burn	500					193
Total Site Preparation	6150	2007	3645	295	1075	1055
Tending						
Cleaning						
manual						
chemical - ground					867	93
aerial	4550	3908	4221	5676	4353	3871
mechanical						
prescribed burn						
Spacing, pre-commercial thinning, improvement cutting						
even-aged						
uneven-aged						
Cultivation						
Total Tending	4550	3908	4221	5676	4353	3964
Protection (Insect Pest Control)						
accelerated harvest						
salvage						
manual protection						
ground insecticide						
aerial insecticide						
Total Protection						

Source: planned: TMP Table 4.19 (1990-1995, 1995-2000); FMP Table FMP-25 (2000-2005)

Actual: AR 6.4.1 (1990-1995); FMP Table RPFO-7 (1995-2000); AR-6 (2000-2005)

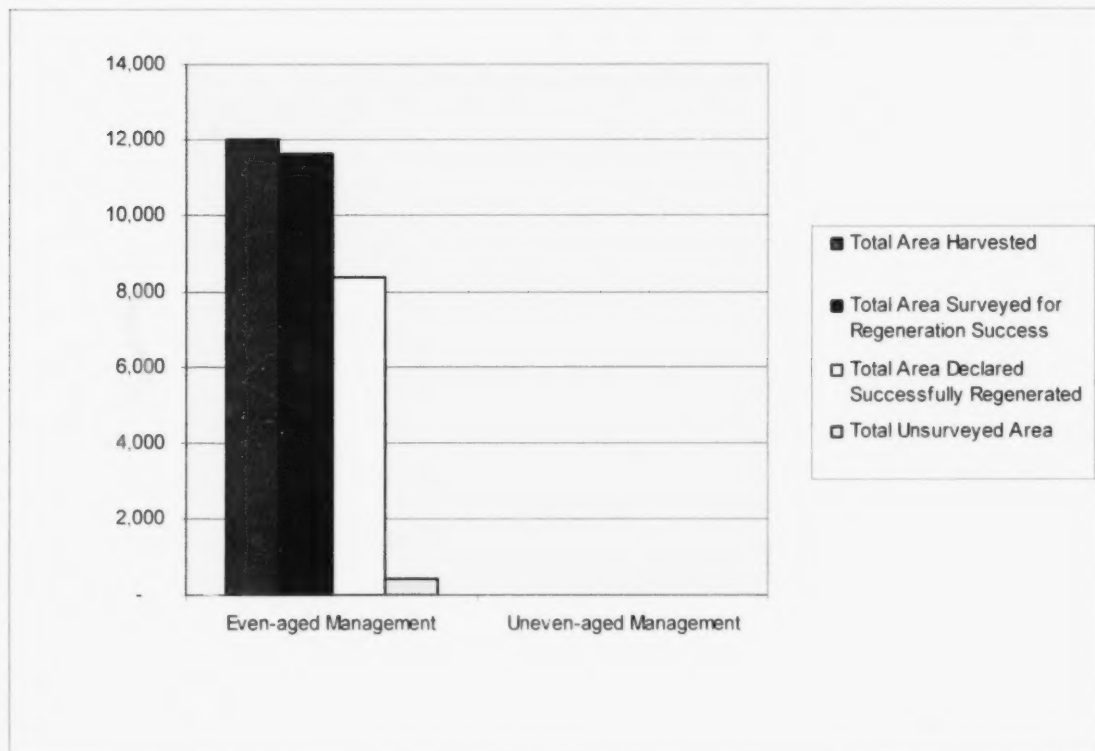
* includes approximations of 2004-2005 silviculture activities to be included in November 2005 Annual Report

2005 Independent Forest Audit

Table 7 – Harvested Area Successfully Regenerated – Summary of All Forest Units

MU: Smooth Rock Falls Forest

	AREA IN HECTARES (All Forest Units Combined)	AREA IN HECTARES (All Forest Units Combined)
	Even-aged Management	Uneven-aged Management
Total Area Harvested	12,008	-
Total Area Surveyed for Regeneration Success	11,599	-
Total Unsurveyed Area	409	-
Total Area Declared Successfully Regenerated	8,372	-
Total Area Surveyed Not Successfully Regenerated		
NSR	3,227	-
B&S	3,227	-
Not Available for Regen. (eg. Roads & landings)	-	-
Other	-	-
Percent of Area Surveyed Declared Successfully Regenerated	72.2%	



Source: total area harvested – digital, spatial GIS records; survey results – digital, spatial GIS records.

Appendix B

Audit Team Members and Qualifications

Audit Team Members and Qualifications

Name	Role	Responsibilities	Credentials
Mr. Herb Bax	Lead Auditor	- Overall audit coordination - Oversee activities of audit team members - Review requirements and contractual obligations - Lead review of achievement of management objectives and forest sustainability - Lead audit report preparation	R.P.F.; CF/CFA, CEA (SFM), EMS (LA); completed over 115 audits across Ontario, Canada and the United States over the past 31 years; worked on 51 IFAs and/or Forest Management Agreement reviews over the previous fourteen years; over the past seven years has participated in over 90 ISO 14001 Environmental Management System pre-assessments and registration and surveillance audits.
Mr. Dave Thomson	Forest Management Planning Auditor	- Audit planning requirements related to public participation, development, and achievement of planning objectives - Review First Nations participation - Assist in assessment of achievement of management objectives and forest sustainability	R.P.F.; 27 years of forestry and resource management experience in Ontario and Manitoba; completed ISO 14001 lead-auditor training. Audit Secretariat on two Independent Forest Audits.
Mr. Brad Chaulk	Silviculture Operations Auditor	- Review and inspect silvicultural practices and related documentation - Assist in assessment of achievement of management objectives and forest sustainability	R.P.F.; 13 years of experience in the forestry sector; head of the Technical Services Division at KBM Forestry Consultants Inc.; member of six Independent Forest Audit teams; currently the plan author for the Black Sturgeon Forest 2006 to 2026 FMP and the lead author of the Silvicultural Ground Rules for the Dog River-Matawin Forest 2005-2025 FMP.
Mr. Bill Wiltshire	Harvesting Operations Auditor	- Assess plan implementation - Assess harvesting operations and access - Assist in assessment of achievement of management objectives and forest sustainability	R.P.F.; 23 years of experience as a professional forester in northern Ontario; co-authored the "Forest Management Guidelines for the Protection of the Physical Environment", and was a developer and Provincial Trainer for the Forest Practices Steering Committee's "Site Protection Training for the Boreal Forest" course.
Mr. John McNicol	Wildlife/ Ecology Auditor	- Review and inspect AOC documentation and practices - Review and inspect aspects of forest management related to environmental practices, values and wildlife protection - Assist in assessment of achievement of management objectives and forest sustainability	M.Sc. Zoology; 31 years forestry experience; co-authored many of the guidelines currently used in forest management planning; auditor on four Independent Forest Audits.
Ms. Susan Jarvis	SFMM Auditor	- Review the long-term strategic planning in the SFMM cases for the FMP - Assist in assessment of achievement of management objectives and forest sustainability	R.P.F.; 23 years of forestry experience in Ontario; auditor on 12 Independent Forest Audits.

Name	Role	Responsibilities	Credentials
Ms. Terri Dawyd	Secretariat	• Review documentation and practices related to the forest management planning process and public participation • Consultation with local FNs • Review First Nation consultation in the forest management planning. • Coordinate document distribution and logistics and audit report preparation	H.B.Sc.F. (candidate); worked with Aboriginal organizations, MNR and contractors on various forestry projects in Northern Ontario; implemented program to increase employment opportunities for Aboriginal people, in the forest sector; organized information sessions and task meetings.

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Appendix C

Independent Forest Audit Guiding Principles

Independent Forest Audit Guiding Principles

1. Commitment
Commitment as reflected in vision, mission and policy statements of the company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.
2. Public Participation
The process of sustainable forest planning, implementation and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizens' Committee, native groups, and other parties with an interest in the operations of the forest unit.
3. Forest Management Planning
The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest, and the best methods to achieve that goal. Certain minimum standards and procedures have been established upon which all management units are evaluated.
4. Plan Implementation
Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievement of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.
5. System Support
System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.
6. Monitoring
The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.
7. Achievement of the Management Objectives and Forest Sustainability
Periodic assessments of the management of the forest unit operations and the forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.
8. Contractual Obligations
The Licensee must comply with the specific requirements of the SFL.

Appendix D

List of Acronyms

List of Acronyms

ACOP	Annual Compliance Operations Plan
AHA	Available Harvest Area
AOC	Areas of Concern
AR	Annual Report
AWS	Annual Work Schedules
B&S	Barren and scattered
CCFM	Canadian Council of Forest Ministers
CEA(SFM)	Certified Environmental Auditor-Sustainable Forest Management
CFSA	Crown Forest Sustainability Act
CLAAG	Careful Logging Around Advance Growth
CSA	Canadian Standards Association
EA	Environmental Assessment
EBR	Environmental Bill of Rights
EMS	Environmental Management System
EMS(LA)	Environmental Management System-Lead Auditor
FERIC	Forest Engineering Research Institute of Canada
FFC	Forestry Futures Committee
FIM	Forest Information Manual
FMNCP	Forest Management Native Consultation Process
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FOCIS	Forest Operations Compliance Information System
FOIP	Forest Operations Information Program
FOIR	Forest Operations Inspection Report
FOP	Forest Operation Prescription
FRI	Forest Resource Inventory
FRP	Forest Research Partnership
FRTF	Forest Renewal Trust Fund
FSC	Forest Stewardship Council
FTG	Free-to-Grow
GIS	Geographic Information System
GPS	Global Positioning System
HPA	High Priority Aspect
HTC	Hunting Trapping Concern
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
ISO	International Organization for Standardization
KBM	KBM Forestry Consultants Inc.
LCC	Local Citizens Committee
LUP	Land Use Permit
MAFA	Moose Aquatic Feeding Area
MNR	Ministry of Natural Resources
MOA	Memorandum of Agreement
NDPEG	Forest Management Guide for Natural Disturbance Pattern Emulation
NRVIS	Natural Resource Values Information System
NSR	Not Satisfactorily Regenerated
OFRL	Overlapping Forest Resource License
OLL	Ontario's Living Legacy
OSB	Oriented Strand Board
R.P.F.	Registered Professional Forester
RPFO	Report of Past Forest Operations
SEIM	Socio-Economic Impact Model
SEV	Statement of Environmental Values
SFL	Sustainable Forest Licence
SFM	Sustainable Forest Management
SFMM	Strategic Forest Management Model
SGR	Silviculture Ground Rule
TAR	Comparison and Trend Analysis of Planned versus Actual Forest Operations Report
TMP	Timber Management Plan
TTN	Taykwa Tagamou Nation

Appendix E

Summary of Input to the Audit Process

Summary of Input to the Audit Process

General Public/Other Stakeholders

An advertisement was placed in four local newspapers (the *Wawatay News*, *The Cochrane Times Post*, *The Enterprise* (Iroquois Falls) and *The Timmins Daily Press*) providing notice of the audit and offering the public an opportunity for input to the audit process. The notice directed the public to contact the Cochrane District Local Citizens' Committee Chairperson or the audit secretariat with any comments regarding forest management activities on the Smooth Rock Falls Forest.

Public Survey

KBM prepared a one-page public survey that was distributed to all organizations and to a random sample of one-third of the individuals listed in the FMP mailing list. In total, 375 surveys were sent out. In addition, the public notice was posted on and available for download from KBM's web site (www.kbm.on.ca). The purpose of the survey was to solicit public input and to provide respondents with an opportunity to identify and discuss any site-specific concerns on the Forest. Six responses were received and are summarized as follows:

- Respondent felt that trees should be harvested without reserves on small streams that dry up in the summer months - after all that is where the best soil is and all farmers use the best soil. They also felt that the forest industry should make use of all species, especially Tamarack".
 - Comments considered by the audit team.
- Respondent indicated that they could identify specific location(s) or activities on the forest that illustrate good or poor management practices including burning of merchantable timber in slash piles. Also indicated their concern with prospectors and surveyors felling trees across portage trails. Also indicated that they have never contacted forest managers with comments during the audit period.
 - Area of issue included in field sample.
- Respondent indicated that they were not aware of any specific locations or activities that the audit team should be aware of, and has never contacted forest managers with comments during the audit period.
 - No action required.
- Respondent stated that applying herbicides to forest stands is killing our forests and a food supply. There are less animals and the trees are stressed; vulnerable to disease. Also indicates that they have contacted forest managers with comments during the audit period and was not satisfied with the response. Further stated that the forests are for everyone to benefit, not just forestry companies and that forests have to be more than a fibre supply.
 - Comments considered by the audit team.
- Respondent indicated they have contacted forest managers with comments or concerns during the audit period regarding hunting etc. and they were not satisfied with the response. Additional comments included "sustainable resource for future generations (reasonable estimate of existing supply)".
 - Comments considered by the audit team.
- Respondent indicated, on behalf of a local recreation group, they had good communications with MNR and Tembec regarding a project in 2004-2005. Respondent also indicated on a personal note that many areas could use replanting.
 - Comments considered by the audit team.
- Respondent could not identify any specific locations or activities on the Smooth Rock Falls Forest that illustrate good or poor management practices that the audit team should be aware of and has never contacted forest managers with comments or concerns during the audit period. Additional comments "Moose Cree First Nation has an interest in part of the area of the Smooth Rock Forest. We should continue to be included in any planning that is done and any changes that are made. We are not satisfied with the present consultation process that MNR has."
 - Comments considered by the audit team, further interviews conducted.

- Respondent indicated that they have never contacted forest managers with comments during the audit period.
 - No action required.
- Respondent indicated that they have never contacted forest managers with comments during the audit period and that they could not identify any specific locations or activities on the Forest that demonstrate either good or poor management practices.
 - No action required.

First Nations

Letters were mailed to Taykwa Tagamou Nation and Moose Cree First Nation informing them of the IFA of the Smooth Rock Falls Forest and inviting them to participate. No response was received to the letters. The aforementioned First Nations and all other Aboriginal organizations on the MNR District FMP mailing also were sent the public participation survey. One response was received from Moose Cree First Nation and comments were addressed. Personal and phone interviews were also conducted with the representative of Taykwa Tagamou Nation during the field audit.

Local Citizens Committee

Prior to the pre-audit meeting, KBM distributed a letter to all LCC members inviting them to submit comments and to attend an LCC meeting with the auditors. The audit team met with 6 LCC members on August 9th. The meeting provided an opportunity for members to express their concerns and suggestions for improvement and provided considerable input for the audit team's consideration.

Members of the LCC participated on field site visits and LCC members participated in the opening meeting and closing meeting. The audit team interviewed two current LCC members (including the chair) and a past LCC member. The audit team received several letters from LCC members expressing concerns and providing input to the audit. The letters were considered during the conduct of the audit and were responded to in writing. The audit team also met with or called each of the individuals to discuss their concerns.

Overlapping Licensees, Contractors and Commitment Holders

A public survey was distributed to overlapping licencees, contractors and commitment holders on the Smooth Rock Falls Forest to solicit input and to provide each respondent with an opportunity to identify and discuss any site-specific concerns. Also, each contractor was sent a personal notice of the audit inviting them to participate via sharing any concerns or issues with the audit team. No responses were received from any of the contractors. Audit team members also met with representatives of Norbord Industries Inc. and Grant Forest Products Inc.

SFL Holder

Tembec staff provided the majority of the input into the audit. Methods of input included: providing background documentation such as the forest management plan, the Trend Analysis Report, maps, meeting minutes, and guiding of field inspections. The audit team recognizes and appreciates that the staff made great efforts to assemble the field binders and organize many aspects of the audit. Numerous interviews were supported with extensive discussion in the field with Tembec staff. These discussions formed a significant basis for understanding forest management on the Smooth Rock Falls Forest.

Ministry of Natural Resources

MNR staff provided significant input into the audit through interviews and preparation of documentation. Representatives from the Cochrane District office were present at the pre-audit meeting, and opening and closing meetings, as well as the field site visit. Interviews were conducted with the District Manager, Area Supervisor, Area Forester, Area Biologist, Senior Area Technician, Area Technicians, and Area Forestry Technical Specialist. MNR Corporate representatives and Regional representatives also participated in the audit.

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Appendix F
Public Survey

**KBM FORESTRY CONSULTANTS INC.
2005 INDEPENDENT FOREST AUDIT
PUBLIC SURVEY**


Every five years, as part of the Province's responsibility for resource management in Ontario, the Ministry of Natural Resources (MNR) contracts firms to evaluate forest management activities on Crown lands. KBM Forestry Consultants Inc. of Thunder Bay, Ontario has been engaged by the MNR this year to conduct an independent forest audit of the Smooth Rock Falls Forest for the period 2000-2005.

As part of our evaluation, we would appreciate your input as a member of the public with an interest in forest management on the Smooth Rock Falls Forest. If you have comments related to forestry activities during the five-year period April 1, 2000 to March 31, 2005, please complete and submit this form (please see back of sheet for more information on the audit process).

KBM provides this opportunity to comment on the Smooth Rock Falls Forest audit, under the authority of Ontario Regulation 160/04 made under the Crown Forest Sustainability Act, 1994. Any personal information provided will be used solely by the audit team as input to the Smooth Rock Falls Forest Independent Forest Audit. Any questions regarding the collection, use, and retention of the personal information can be directed to Herb Bax, Lead Auditor at 807-345-5445 ext. 230 (email: hbax@kbm.on.ca) or to the company address indicated below.

Name:
(optional)

Tel. and/or email:
(optional)

What is your interest in forest management on the Smooth Rock Falls Forest?

Recreation ☐

Employment (forestry, tourism, etc.) ☐

Conservation ☐

Other:

Can you identify any specific locations or activities on the Smooth Rock Falls Forest that illustrate good OR poor management practices, and that the audit team should be aware of in conducting their evaluation? (*Please indicate if we may contact you for more information.*) (☐Yes ☐No)

Have you ever contacted forest managers with comments or concerns during the 2000-2005 audit period? (*e.g., local Ministry of Natural Resources, Tembec Inc..*) (☐Yes ☐No)

If yes, were you satisfied with the response? (☐Yes ☐No)

Feel free to add any additional comments (use additional sheet if required).

Please **mail, email, or fax** the completed survey (Attention: Terri Dawyd) to the address/fax number below by **Friday September 16th, 2005**.

The survey can also be accessed through our website, located at www.kbm.on.ca

Although we cannot respond to everyone, we do take into consideration all comments received and thank you in advance for your input.

KBM Forestry Consultants Inc.
tdawyd@kbm.on.ca

100 Highway 120
Thunder Bay, ON P7B 1G1
<http://www.kbm.on.ca>

Tel: (807) 345-5445 ext. 230
Fax: (807) 345-5445

INDEPENDENT FOREST AUDIT

Smooth Rock Falls Forest

KBM Forestry Consultants Inc. has been retained by the Ministry of Natural Resources (MNR) to conduct an Independent Forest Audit, consistent with the Crown Forestry Sustainability Act, on the management of the Smooth Rock Falls Forest.

The audit covers the April 1, 2000 to March 31, 2005 operating period. You are invited to comment on the forest management activities on the Smooth Rock Falls Forest for this period of time. Please mail, email, or fax this form to:

Ms. Terri Dawyd
KBM Forestry Consultants Inc.
349 Mooney Ave., Thunder Bay, ON P7B 5L5
tdawyd@kbm.on.ca
Tel: (807) 345-5445 ext. 233
Fax: (807) 345-5858
Toll-Free: 1-800-465-3001

(All correspondence sent to KBM is confidential).

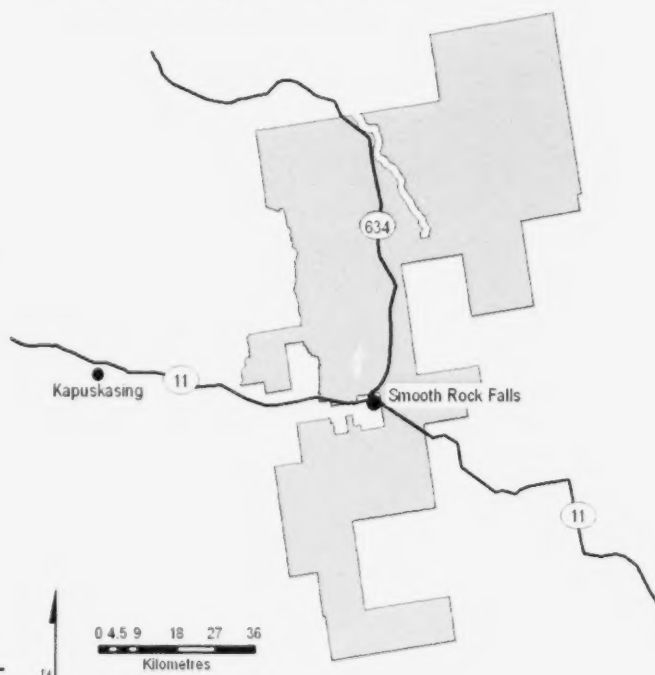
Alternatively, comments can be made directly to the Local Citizens Committee Acting Chairperson:

Mr. Dave Gold, Acting Chair
Cochrane Local Citizens' Committee
Box 554, Iroquois Falls, ON P0K 1G0
zeak69ca@yahoo.ca
Tel: (705) 232-7746

(The privacy of any information given to the LCC may not necessarily be protected).

Comments must be received by
September 16th, 2005.

Smooth Rock Falls Forest



Purpose of the Independent Forest Audit

The Purpose of the audit is to assess:

- compliance with the *Crown Forest Sustainability Act*,
- compliance with the Forest Management Planning Process,
- a comparison of planned versus actual forest management activities,
- the effectiveness of forest management activities in achieving audit criteria and management objectives,
- assess the effectiveness of previous audit action plans, and
- where applicable, a licensee's compliance with the terms and conditions of the Sustainable Forest Licence.

The seven-member audit team will evaluate forest management planning and practices such as harvest operations, forest renewal activities, road construction and maintenance as well as opportunities for public input and First Nations consultation. The main objectives of the audit are to assess compliance with provincial laws and regulations as well as comment on the effectiveness and sustainability of forestry activities on the management unit.

In addition, the independent forest audit provides an opportunity to improve Crown land management in Ontario through adaptive management. The audits are conducted by consultants that are independent of the Ministry of Natural Resources and the companies being audited, and firms are selected in an arms-length process by the Forestry Futures Committee of Ontario.

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Appendix G

Public Notification

SMOOTH ROCK FALLS FOREST INDEPENDENT FOREST AUDIT

KBM Forestry Consultants Inc. of Thunder Bay, Ontario has been retained by the Ontario Ministry of Natural Resources to conduct an Independent Forest Audit, consistent with the *Crown Forest Sustainability Act*, on the management of the Smooth Rock Falls Forest.

The purpose of the audit is to assess forest management activities within the Smooth Rock Falls Forest during the five year audit period from April 1, 2000 to March 31, 2005.

Specifically:

- compliance with the *Crown Forest Sustainability Act*;
- compliance with the Forest Management Planning process;
- a comparison of planned versus actual forest management activities;
- the effectiveness of forest management activities;
- the effectiveness of previous audit action plans; and
- compliance with the terms and conditions of the Sustainable Forest Licence.

You are invited to comment on forest operations on the Smooth Rock Falls Forest for this period of time. Please provide your comments by Friday, September 16, 2005, directly to the Cochrane Local Citizens Committee:

Mr. Dave Gold, Acting Chairperson
Box 554, Iroquois Falls, ON P0K 1G0
Tel: 705 232-7746
zeak69ca@yahoo.ca

(The privacy of information given to the LCC may not necessarily be protected).

Alternatively, comments can be sent to:

Ms. Terri Dawyd
KBM Forestry Consultants Inc.
349 Mooney Avenue
Thunder Bay, ON P7B 5L5
Tel: 807-345-5445 ext. 233
Fax: 807-345-5858
Toll Free: 1-800-465-3001
tdawyd@kbm.on.ca

(All correspondence sent to KBM is strictly confidential.)

For more information or to complete our public audit survey please visit: www.kbm.on.ca.





